

BUTANE-PROPANE

News

Headquarters for L.P. gas Information Since 1931

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WHY METERED SERVICE PAYS!

TABLE 1. AN ANALYSIS OF REASONS GIVEN BY 121 GAS CUSTOMERS FOR CHANGING THEIR GAS SUPPLY SOURCE.

Reason Given By Customer For Changing	Number Changed	Percentage Changed
Unsatisfactory service	29	23.96
Customer believes dealer has cheated him	17	14.04
Lower price quoted by competition	14	11.57
Over-sale by dealer	13	10.74
Friendship or relation to competitive dealer		
Business relationships with dealer making change		60.31
Geographical location		

Reproduction of the first four items of a table printed in Butane-Propane News, August, 1952.

60.31% of these customers changed dealers for reasons that Rockwell meters would prevent



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Let's see how Rockwell meters would have prevented the loss of these customers. Consider the matter of *unsatisfactory service*. This usually results from "out of gas" calls, often at unreasonable hours. With meters you can keep your customers' tanks full, and use them to help solve your storage problems. With meters, too, no customer can claim he has been *cheated*. He pays for only the gas used and no more. In the matter of a *lower price*, with metered service you can establish sliding scale rates that help you sell big profit appliances. Finally, with meters there is no temptation for an *oversale* of gas that can create ill will.

Chances are the customers tabulated above changed to dealers offering metered service. Isn't it time you changed over your operation and gained all the advantages Rockwell LP-gas meters alone offer? Write for catalog and price list.

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ROCKWELL LP-GAS METERS

APRIL 1953

BUTANE-PROPANE

BPN

News

VOLUME 15

NUMBER 4

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A JENKINS PUBLICATION

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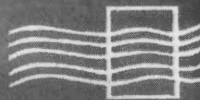
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BUTANE-PROPANE News is published monthly. Copyright 1953 by Jenkins Publications, Inc., at 198 So. Alvarado St., Los Angeles 4, California. Subscription price: United States and U. S. Possessions, Canada, and countries in Pan-American Postal Union (in advance), 50c per copy, one year \$2; two years \$3. All other countries one year \$4; two years \$7. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 8, 1879. Member of Audit Bureau of Circulation, Controlled Circulation Audit, Liquefied Petroleum Gas Assn., National Fire Protection Assn.

Publishers: GAS, The Magazine of the Gas Utility Industry; HANDBOOK BUTANE-PROPANE GASES; THE BOTTLED GAS MANUAL; BUTANE-PROPANE POWER MANUAL; Annual BUTANE-PROPANE News CATALOG; LPG BULK PLANT MAILING LIST SERVICE; WESTERN METALS.

LETTERS



Headquarters

for L.P. gas Information

Since 1931

Wisconsin

What are usual requirements or recommendations for colors of paint used on 100- to 1000-gallon storage tanks?

Would reflection and temperature control be satisfactory if a coating of aluminum is used beneath a paint job of light green or blue?

B.O.

Experimental work indicates that paint type and quality have a greater effect on the reflecting and heat absorption properties of a paint than the color. A dark paint of good quality and having a high gloss or shiny surface finish may have greater reflecting quality than many aluminum paints.

The coating of aluminum under the other paint would act the same as any other prime coat.

A leading dealer has used a green enamel for several years on his L. P. gas tanks. He uses a good quality glossy enamel and has found that temperature and pressure rise in his tanks on a hot sunny day is little different than when painted with aluminum. He has also found the enamel more economical and that it retains both surface finish and color better than the aluminum. A nice color scheme has customer appeal.—Ed.

Oregon

I am writing you for information on torches for use in bending Neon sign tubing.

A company here has purchased some equipment which is designed for use with either natural or manufactured gas in conjunction with 1 to 3 pounds of air. The air and gas are taken from a manifold and regulated with valves to obtain the correct mixture. I might point out that it is a homemade affair and does not work!

Enclosed is a sketch of the multiple torch and a hand torch which

you, perhaps, recognize and can tell me if it is possible to adapt them for use with propane gas.

Any other information which you can give me which will aid me in setting up these torches so they will work satisfactorily, will be much appreciated.

M.S.

Any one or several of the following reasons may explain why the burners you describe do not work well on L. P. gas:

1. The torch tips may not be of proper design to produce satisfactory service with LPG.

2. The gas pressure may not be adequate. A higher pressure of the gas-air mixture may be necessary to force enough fuel through the tips.

3. Gas and air pressures may not remain adequately steady enough to provide a steady ratio of gas and air, and therefore the flame varies or goes out.

4. Better results would undoubtedly be obtained if a type of mixing were used which allowed the air to inspire the gas in proportion to the rate of flow.

5. If a special mixing tee is used, your sketch indicates that it is hooked up wrong. Normally, the air would enter where you show the gas coming in, and the gas where you show the air entering.

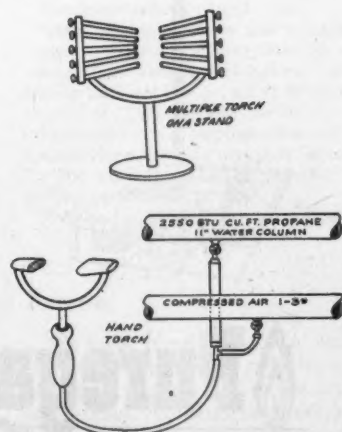
6. If the mixing tee is used, perhaps the gas pressure is too high, and a secondary regulator reducing it to near zero should be used.

You did not explain in what way the burners failed to function. If the trouble is insufficient heat, then the burner tips might be too small for LPG, or the pressure of the mixed gas too low. If the flames are unsteady and vary rich (yellow) or lean (blow off), then the relative pressures of gas and air are not steady. With manually controlled mixing (which your sketch indicates) exact pressure regulation is imperative. Two-stage regulation of the L. P. gas, and adequately sized secondary regulators would be helpful.—Ed.

Oregon

We have a compressor for unloading operations. The question has arisen in our organization as to whether or not it is possible with this compressor to ever get liquid propane into it in such a manner as to damage the compressor. The electricity was going on and off at our plant last week at a time when we were compressing on a tank car. When we start taking the propane vapors out of a tank car, we send these hot vapors through what we call a by-pass valve in the bottom of the tank so that the hot vapors go through liquid propane in order to arrive to the top of the tank, thereby cooling them and keeping the pressure low in the large storage tank.

Now, of course, if the electricity goes off and the compressor stops,

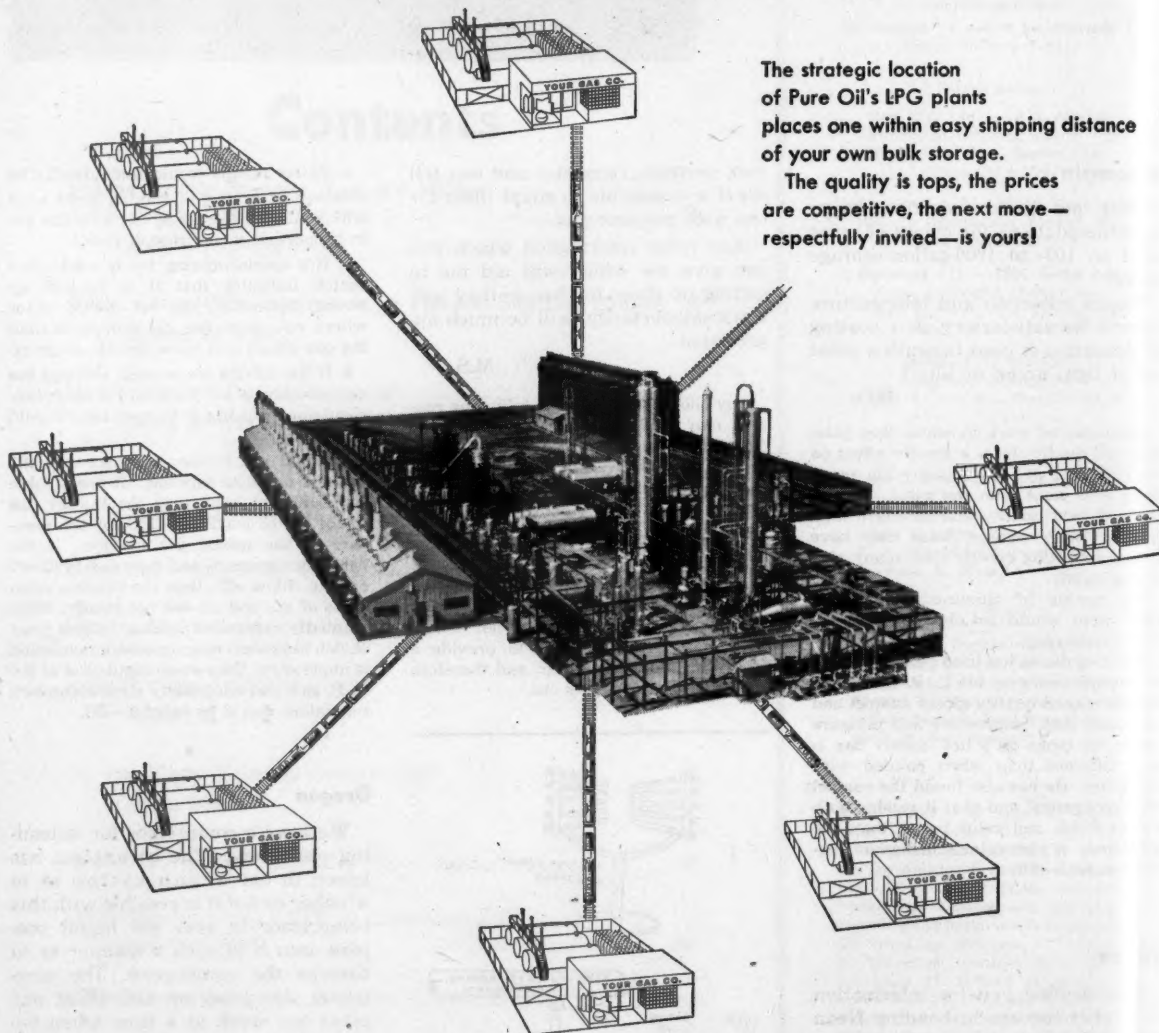


This sketch shows wrong method of hooking up gas and air connections. For correct instructions, see Part 5 of answer to letter.



Puregas NEWS NOTES

From The Pure Oil Company, 35 East Wacker Drive, Chicago 1



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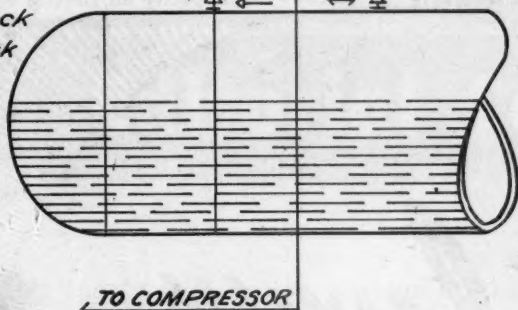
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Vapor Inlet Submerged in Liquid With Manual Angle Globe Shut-off & Check Valve Permitting Flow Into Tank but Not out as Shown, or Back Check Valve in Tank Outlet if Desired.



Install check valve to avoid damage to compressor.

this then means that a liquid valve or outlet is open and this liquid can flow back from the storage tank into the compressor. And this liquid propane would be in the compressor when it again started up to continue its operation of removing vapors from the tank car.

In such a situation, do you feel that anything on the compressor would be damaged when the compressor again starts with this liquid propane in it?

Some of our people definitely said it would—that it probably would break the head of the compressor. Others said that, since the valve was still open into the tank, the pressure would merely force the liquid back into the tank and the compressor would carry on as before, removing vapors from the tank car and putting them into the storage tank into liquid form.

O.S.

Your letter presents an interesting problem. If the liquid fuel gets back into the compressor, it may break a head when the compressor resumes operation, and it will certainly wash the lubricating oil from the cylinder walls and pistons, which may damage the compressor severely.

The standard engineering precaution against this possibility is the installation of a check valve (sometimes called "back pressure check valve") in this line where it joins the tank. If there is no check valve in this circuit in your installation, you should put one in at once. The simplest procedure is to install it at an existing joint in the pipe. All of the LPG valve manufacturers are able to supply units which do the job. (See drawing above.)—Ed.

Michigan

I hope that none of my customers who purchase propane for cutting

read the Letters on Page 31 of the February issue of "Butane-Propane News". If they do, they will surely think I have misrepresented the facts. Here I have been selling propane at 10 cents per lb. and showing the customer a saving of $4\frac{1}{2}$ times. In other words, \$1 will buy as many Btu's in propane as \$4.50 will in acetylene, based on propane at 10 cents per lb. and acetylene at \$3 per 100 cu. ft.

Now you come along and show that it is only 50% with propane at .03 per lb. and acetylene at \$2.95 per 100 cu. ft. Shame on you. Let's correct this in an early issue. The acetylene cost is about right but propane at .03 per lb. equals \$1.38 per 1,000,000 Btu's based on 21,633 Btu's per lb. of propane and about 1460 per cu. ft. of acetylene.

Red E Gas Products Co.
Stephen A. Bone

You are absolutely right!

When working out the cost comparison between propane and acetylene, for some unexplained reason we divided 1,000,000 Btu by 2525, the Btu per cu. ft. of propane, instead of 21,690, the Btu per lb.

Incidentally, the heating value we gave for acetylene, 1499 Btu per cu. ft., is correct for the pure form but is probably high for the commercial product.

Thanks for jacking us up on this.—Ed.

Ontario

We have for the past few months been investigating the substitution of propane for acetylene in gas cutting operations. Although we have found varying reports on cost comparisons between these two gases and have visited shops where propane is now in use, we have not been able to find any recent definite information on

savings, if any, through the use of propane gas.

No doubt recent cost comparisons have been established from the ground up for these gases.

I would appreciate any information that would assist us in this matter.

J.E.T.

On a direct heat equivalent basis, assuming 1499 Btu per cu. ft. for acetylene and 21,690 Btu per lb. for propane, acetylene at \$3 per 100 cu. ft. is 10 times as expensive as propane at about $4\frac{1}{2}$ ¢ per lb.

We do not have cost analyses available to ascertain whether the difference in price per unit of heat delivered, and other advantages of propane, can offset the greater ignition speed and effect of personnel acceptance of acetylene.

In general, when propane is compared with acetylene for use with oxygen in gas cutting operations, preheating and ignition are faster with acetylene, but propane is superior in cleanness of cut, closeness of tolerance, and less slag adherence. When propane is used, sheets can be stacked and cut with less tendency to stick together, because of the lessened slag formation.

We believe that other factors, such as the quality of cutting required and the type of work, may have a greater bearing on the gas used than comparative fuel costs alone. Some manufacturing concerns which use L. P. gas for cutting work claim that the quality of cut achieved is far superior to, and offsets any advantages of, acetylene. Others have stated that, although the quality of cutting was superior, they were forced back to the use of acetylene by problems of training and personnel acceptance.

A personal experience record of savings possible in using LPG for metal cutting is shown on Page 138 of this issue.—Ed.

Oklahoma

We have several irrigation projects in our area that irrigate from wells through a sprinkling system.

I understand that in the California area, the exhaust gases from the propane engines are put back into the water and that this gives it some fertilizing value.

I would appreciate any information you could give me as to how this is done and something about how much it would benefit crops.

W.M.M.

We do not know of any case of this being done. It would not be possible to do so through a sprinkling system because of the back pressure against the exhaust manifold. It might be done in cases where the water is pumped into a ditch. Here the exhaust could be piped just under the surface of the water.

As to the fertilizing value, this is problematical. As far as we can tell, there is no fertilizing value in engine exhaust gases.—Ed.

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APRIL



Editorial Comment

A RECENT SURVEY made by one segment of the electrical industry finds liquefied petroleum gas to be an alarming competitor.

Out of 340 questionnaires, asking if liquefied petroleum gas is an active competitor, which were sent to power companies and rural electric cooperatives serving close to 2,600,000 farms (over half of all electrified farms in the United States), 273 answered in the affirmative. Some quotations:

"On power company lines, the percentage of customers using bottled gas varies all the way from less than 1% up to 90%. A top figure of 95% was reported for the co-ops.

"Striking an average for those reporting as to bottled gas competition, it is found that about 26% of the power company farm customers use bottled gas. For the co-ops the average is appreciably higher--approximately 36%.

"The large number of bottled gas users on utility and REA co-op lines points up the need for more aggressive and positive selling to convince rural residents of the benefits of using electricity, rather than competitive fuels, for farm production and household purposes."

Sometimes LPG dealers have fears of inroads from the electrical industry, but from the above it is quite apparent that electric companies look upon us as their greatest competitor in rural areas.

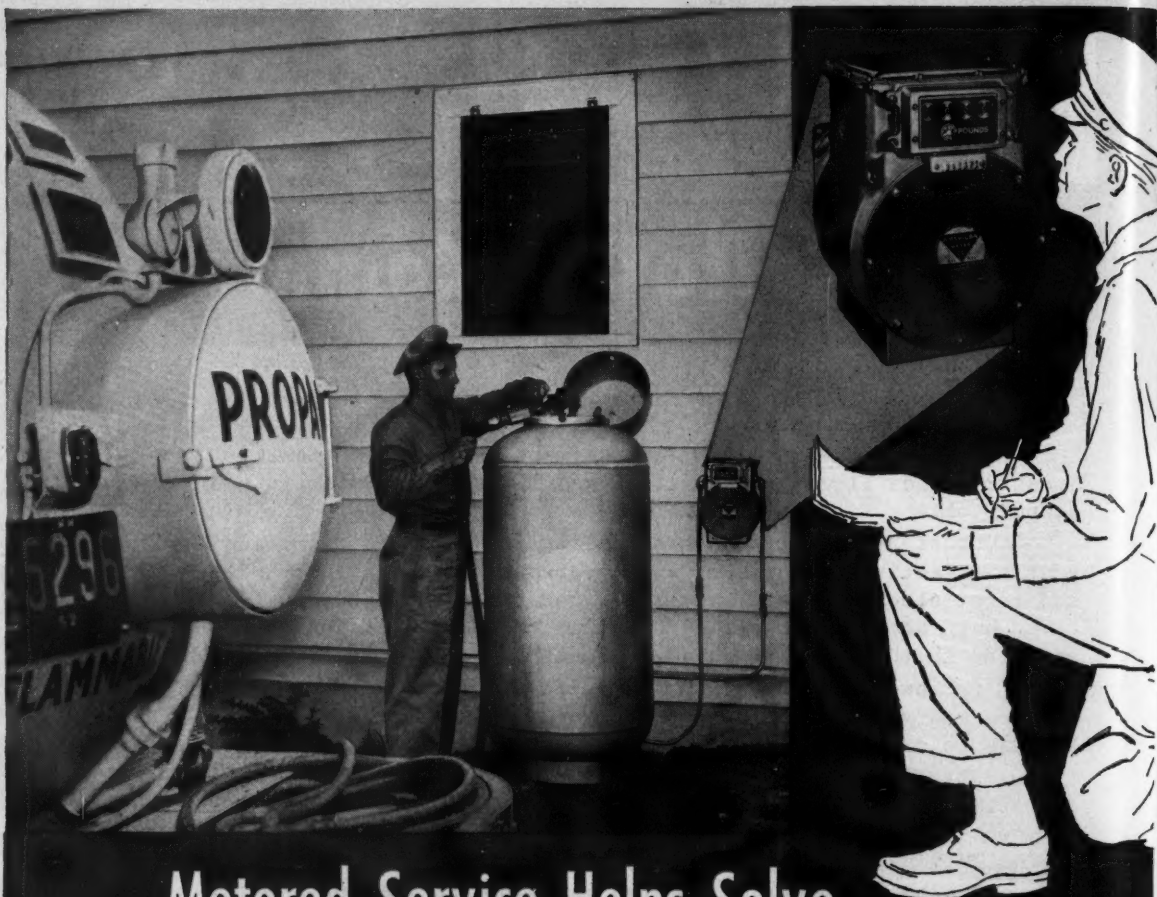
Dealers who like to fume over the injustice of having to compete with cooperatives, which enjoy a better tax position, will gnash their teeth to hear that the Consumers Cooperative Association is expanding its refinery improvement program to the amount of \$3,420,000.

Refining their own petroleum products (including LPG)--sometimes from their own oil wells--certainly gives cooperatives a big selling edge on the regular LPG dealers, whose products reach them through regular channels.

Who wouldn't fuss and complain under these conditions?

However, there is some reason to hope that Congress will soon rectify this situation to the extent of changing the existent tax pattern for cooperatives.

Ed.



Metered Service Helps Solve LP-GAS STORAGE PROBLEMS

HERE'S HOW: ● You utilize your customers' tanks to the fullest extent, for extra storage beyond the capacity of your central bulk plant.

- With larger tanks, or a greater number for each customer, you increase overall storage even more—yet your customer pays for just what he uses on the meter.
- You keep your customers' tanks filled at your convenience on a regular delivery schedule—thus economizing on both bulk storage investment and trucking expense.
- You can use one large storage tank for several adjoining services—further increasing capacity and simplifying deliveries and check outs.

Metered service answers many other problems. It enables reduction in truck fleet size through efficient, planned deliveries. It reduces errors and eliminates disputes—promoting customer confidence. It permits deliveries while customers are away and it allows purchase of LP-Gas in large quantities at seasonally advantageous prices.

American LP-Gas meters, built with the precision that insures accurate, dependable measurement, are designed for lowest possible cost and longest possible service life. Every construction detail reflects the know-how gained in nearly twelve decades of meter manufacture under American Meter Company's tradition of "Sustained Accuracy at Lower Cost."

**AMERICAN
METER COMPANY**

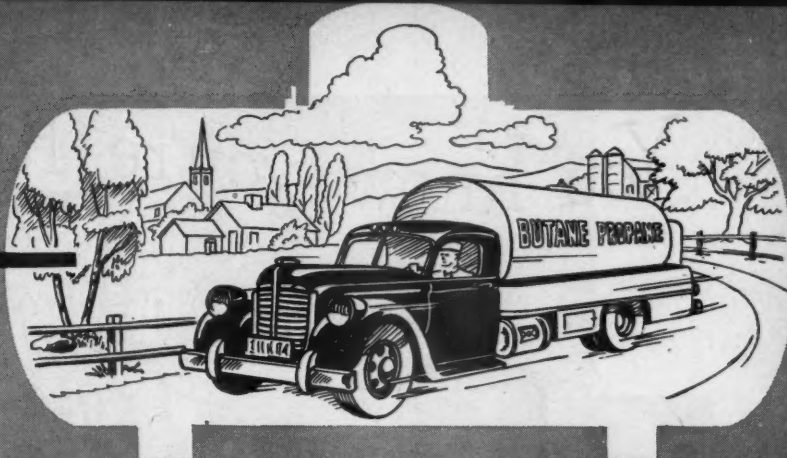
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BEYOND THE MAINS



How a Dam in Texas Helps Dealers Elsewhere

The great Falcon dam, on the lower Rio Grande river, in the construction of which L. P. gas has played an important part, is nearing completion, and is expected to begin storing water for irrigation, flood control, and power development late this year.

Its completion will be particularly important to the gas distributors and dealers in the lower valley. Millions of acres of new crop land will be placed under cultivation.

With a long growing season and intensive production of crops requiring an unusually large amount of cultivation or mechanized work, the irrigated area of the lower Rio Grande valley already supports one of the greatest concentrations of tractors and power farming equipment in the United States. It is estimated that 20% of the tractors in the area are now operating on L. P. gas, and conditions are perfect for a much higher ratio as new equipment is put in service and the work of conversion goes on.

The cost of equipping an engine to burn propane or butane is returned quickly out of savings in operating cost where the annual hours of use are high and the base cost of fuel is low in comparison with gasoline.

Offhand, the increase of L. P. gas consumption in the remote tip of Texas might not be of great concern to a gas distributor in New England, Ohio, or Minnesota, but let's take a closer look. In spite of the winter crops, the highest percentage of power fuel in this area will still be used in the nine warmer months. Increase in summer consumption makes it economically feasible for producers to increase their year-round output. The development of this substantial off-peak market can be expected to make more fuel available in winter for

shipment to territories where winter fuel is most urgently needed, and where there seems to be little possibility that a balancing summer demand will be created.

The producers do not care where the fuel is consumed at any season of the year. They can ship it wherever it is needed. The interests of both producing and marketing groups, wherever they may be located, require that we establish a national balance which will permit constant production throughout the year. The useful burning of L. P. gas in the summer is increasingly vital if we are going to keep more people warm in winter.

Mixing Fun With Work

Universal Gasoline Co., an affiliate of Universal Petroleum Co., has a 15,000-gallon per day LPG producing plant down near Madill, Okla., in which labor turnover is not a problem. According to Bob Tudor, general sales manager, it is almost impossible to get rid of employes after they have once gotten into the plant routine and tasted the employment advantages offered.

The reason? The plant sits on a peninsula jutting out into Lake Texhoma, which is one of the best bass fishing spots in the U.S.A. All employes are carefully selected for their sporting instincts as well as their technical qualifications for refinery work. Fishing rods are almost as numerous in the plant as pencils.

And no employe would think of dropping in at the local pool hall on the way home from work (no bars in Oklahoma) without at least one bass of bragging proportions.

Ah me! What a place that would be to publish a magazine!

Earl Abell

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For instance, just a few extras are: Tare weight and all markings are cut extremely deep into a thick collar around the valve spud (*not* in cylinder wall). Lettering remains easy to read even after numerous repaintings. Collar is welded completely around inner and outer edge that joins it to cylinder—no moisture can get underneath to cause corrosion. The sturdy footing has ample openings for ventilation and drainage, another guard against corrosion—your maintenance expense is reduced. Every PREST-O-LITE Cylinder is manufactured, inspected, and tested to more than meet all codes and specifications. Several coats of extra-durable glossy aluminum finish protect the cylinders indefinitely—you save repainting costs. The only seam is a superior girth weld because two cold-drawn shell halves are electrically joined by submerged

melt welding. These, and all the other plus values are standard with PREST-O-LITE Cylinders. They're made by LINDE, the largest manufacturer and user of compressed gas containers—the "know-how" that's been gained is passed on to you.

You'll find the prices right in line too. You can have the popular sizes—20-lb., 40-lb., 60-lb., 100-lb.—with or without valves. Other styles can be made to order. WRITE TODAY for complete literature, at no obligation.



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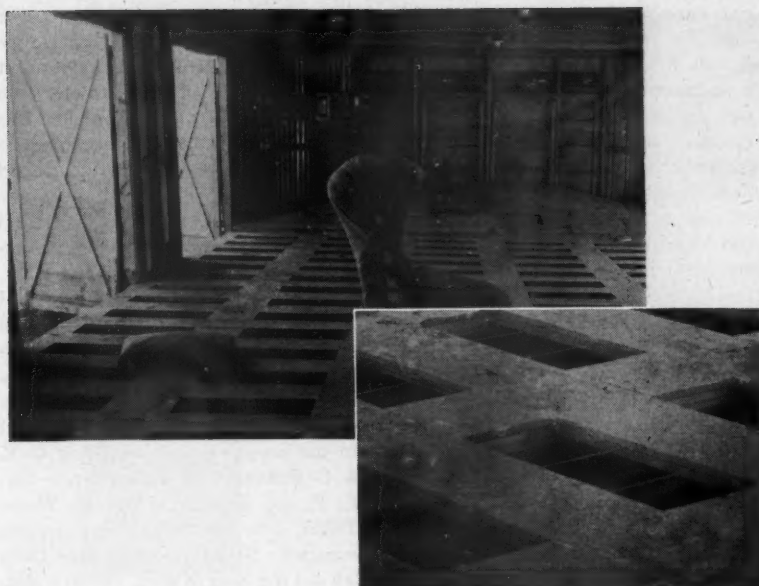
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Elevated floor consists of lattice-work structure with 102 openings which permits sacks of seed to be exposed to heated air from tunnels below. (Inset) Heavy wire strands bisect openings and provide support for sacks.



Butane-Drying Prevents Rust and Mildew For Texas Hayseed Grower

By Gene Creighton

EELIMINATING almost completely what had formerly been a serious yearly problem—loss of fescue seed through rust and mildew—is the job which a unique butane gas-fired dryer is accomplishing at the League Ranch, near Mexia, Texas.

The League Ranch, with extensive holdings throughout central Texas, depends for much of its yearly profits upon extremely high quality fescue seed, much in demand for hay production throughout the same area. Until Dr. J. T. Miller, head of League Ranch No. 3 near Mexia, developed a new drying process, there was a substantial amount of loss encountered each year through unseasonal rains, torrential thunder showers and other weather phenomena.

Designed to swiftly dry seed to maintain it at No. 1 germination point, most desirable from all standpoints, Dr. Miller designed a specially built butane-fired dryer after much experimentation. Prior to that time,

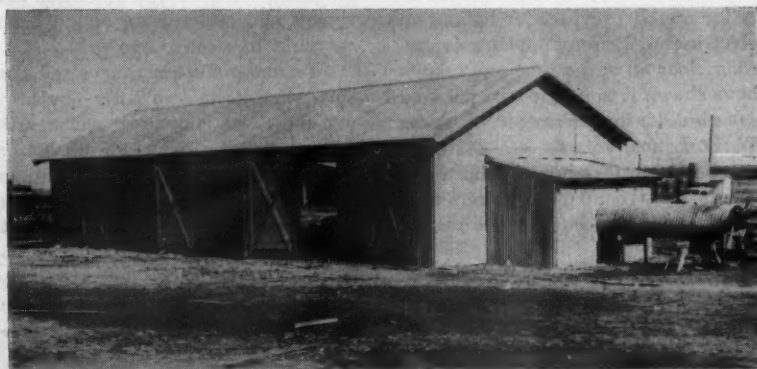
the League Ranch No. 3 had to depend upon natural drying under the bright Texas sun, with a considerable factor of risk during recent years.

The dryer, which is serving several other League Ranches, as well as a long list of livestock growers in the Lone Star state, is a 70 ft. by 25 ft. galvanized metal building, installed

directly behind the ranch manager's office at the Mexia property. The enclosure is provided with three 8-ft.-wide doors on each side, which give maximum convenience for loading and unloading the sacked seed.

Within the building is an elevated floor, which is actually an enlarged latticework over six concrete tun-

This 70 ft. by 25 ft. building is used in connection with a specially developed butane-fired dryer for drying high quality fescue seed at the League Ranch, Mexia, Texas.



nels running the length of the building. The concrete tunnels, 3 ft. wide by 60 ft. long, are all capable of simultaneous or independent operation by means of bypass valves located at the elevated, triangular "head" at the west end of the building. Over the tunnels are located 102 "slots," 3 ft. long by 10 in. wide, and framed in heavy white pine lumber. Stretched longitudinally through the floor the length of each tunnel are two heavy wire braces to provide additional support for the 100-pound sacks of seed, which are laid neatly over each slot for the drying process. For all practical purposes, the dryer consists merely of a galvanized metal shell over a slotted "grid" by which heat may be applied to rise directly through bags of seed, bales of alfalfa hay, or whatever is subjected to the drying process.

Swiftly-moving air heated to 140° F is provided by two 3-ft. centrifugal "squirrel-cage" blowers, located in the small blower room at the west side of the building, and by a 9 ft. by 2½-ft. galvanized metal venturi tube in which the butane burner is housed. Fuel is provided from a 500-gallon, aboveground tank, set 40 feet away

from the dryer house in a direct line with the burner. Through a simple damper system it is possible to direct the heated air at high velocity into one or more of the six tunnels. The design of the butane burner, projecting into the open end of the ribbed metal housing, is such that an increased velocity provides maximum heat. Output of the blowers averages around 7500 c.p.m. each.

Drying operations are supervised from a single control panel, located at the left front corner of the building. Under normal operation, it requires approximately one hour to dry a 100-pound bag of fescue seed to the proper point, according to K & G Butane Gas & Appliance Co., L. P. gas dealers of nearby Waco, Texas, who handled the installation contract. Standard procedure is to lay out the bags of seed, one to a slot, and subject them to 140° warmed air for a period of half an hour, when they are simply turned over to complete the process. Any one or all of the six doors along the sides of the building may be opened to expedite the drying operation.

In use for only a single season, the League Ranch dryer house has

shown itself not only capable of drying 102 100-pound bags of seed to perfect shipping condition in one hour, but likewise to save fescue seed which under ordinary circumstances would be given up as lost, according to Edwin Gummelt, Jr., of the K & G company. As an experiment, Dr. Miller directed that several thousand bags of fescue seed from other League Ranch holdings, already badly molded, be sent to the dryer for a test. After being subjected to an hour's drying, the seed "got new life," with all smut being blown out, and a germination percentage of 85% was reached on seed which otherwise would probably have been a complete loss.

So efficient has been the operation of the dryer that it will pay for itself within two or three seasons, Dr. Miller states. Gas consumption costs have not been high, inasmuch as a single 500-gallon tank is adequate to operate the dryer during the season at full capacity for four consecutive nights, running from 6 o'clock until 1:30 in the morning. This totals approximately 32 hours of maximum-capacity output per 500 gallons of butane gas utilized.

Keeps Competitive Appliance on Floor To Help Sell Gas Ranges

By Ernest W. Fair
Field Editor
Butane-Propane News

"SOME butane-propane gas dealers hesitate to stock electric appliances because they feel a sense of loyalty to the gas business forbids it, but I have tried an experiment that has worked out very successfully for me. It provides for having an electric range on my appliance sales-room floor all of the time and results have shown it to be the best possible sales builder for gas ranges," declares W. D. Lance, veteran gas dealer in northeastern Oklahoma, whose big Vinita showroom displays not only a full line of gas-but electric ranges as well.

"We sell just about a dozen electric ranges a year where we sell better than 100 gas ranges and I know from actual experience we would never

have had the chance to sell those gas ranges and tanks if we hadn't been carrying an electric line.

"We make electric ranges sell gas stoves for us in two ways—by having and displaying them we're sure the person who has made up his or her mind they want an electric range comes and sees us—if they went somewhere else we'd never get a chance to sell them gas—and secondly, by standing right there as a comparison factor with which we can show customers how very inexpensive a gas range is for them!"

And in such comparative selling Mr. Lance does a lot more than quote comparative operation cost figures. He goes into glowing description of the wonderful foods that gas, alone, can prepare for the hungry husband.

"When you have a husband and wife together there's just one way to appeal to the husband and that's to make him so hungry he can't wait to get the stove in the house," Mr. Lance declares, "and that's exactly what we do when we've finished comparison talk.

"When I started in the gas business many, many years ago we had to go out and sell the 'new-fangled' gas against the old established wood and coal cooking stoves. And to do it I had to learn how to cook and I did.

"I believe if more gas range salesmen were good cooks today they would find selling a lot easier because you can really go to town in describing how appetizing something is when broiled in a modern gas range.

"Here we've found that selling through the broiler in the range is the easiest and best way because it has so many more advantages over other types of stoves where other features may be nearer equal.

Create Desire to Buy

"I talk about broiled steaks—and step-by-step on how to cook them—broiled fish—and everything else—and it makes the sales for us! Time after time we make a gas range sale (and a tank installation as well) just because of such selling to prospects who come in with no desire whatever to buy gas—they'd already sold themselves on electricity.

"But if we hadn't the electric ranges there we'd never have had the chance to sell them—they would never have come in to look!"

In comparative selling Mr. Lance uses many descriptive phrases such as, "I don't care if you have money to throw to the birds—you still want the best food cooked the easiest way," which he finds to be a method of argument far superior to quoting of cold statistics of comparative cost factors.

He believes a range is easiest sold with the "sizzle of the steak" and not just the steak itself. You can talk "steak" indefinitely, he points out, and not make a customer hungry but when you begin talking about the "sizzle" of that steak you soon have a customer more than eager to buy the stove.

"Why, I didn't know there were so many good things to eat until I found out about a gas range broiler," is a selling sentence he always uses to set off his personal and very vivid descriptions of cooking in the broiler of a modern gas range.

The tank and installation cost arguments he does away with by selling on a basis of the life of the stove and shows how the extremely lower cost of gas operation more than makes up the difference in a very few years.

Once a year he promotes an event that has made him the envy of many



There's no easier way to sell gas stoves than through comparison with electric stoves, declares W. D. Lance (left) of Vinita, Okla., and here he listens to a customer talk electric in order to lay the groundwork for gas sales effort later.

another dealer . . . last time it sold 128 gas ranges and accompanying tank installations!

The event is featured in full page advertisements in six small town newspapers in the area, the newspaper at Vinita and through throw-aways on Saturday over the entire area.

It offers a big name brand gas range AND an Anco "Pacific Pig" tank for the price of the range, alone! Since this is a very popular range (Magic Chef) and is advertised in nearby big city newspapers consistently, his customers can see there is nothing misleading about the price.

"I net \$48 on every one of those deals," he declares, "and that's worth while on a three-day event when you have practically no money tied up because you can sell for future delivery and collect as the stoves are delivered. That's a good deal in my book.

"The secret is that we retain the title to the tank itself, that it unearths new customers for us, and introduces people to farm gas easier and quicker than any other way we know.

"Within a two- to three-year period better than half of those tanks are replaced by outright sales of 500- to 1000-gallon tanks and additional appliances, plus more gas usage.

"I then have my old 'Pigs' back . . . clean them up and give them a new coat of paint and they're ready to go to work for me again.

"What is more, the cost of the promotion and advertising is almost nothing since the manufacturer of the stove, the tank and my gas supplier all share in it!

"Besides I always maintain advertising never costs you anything—it costs your competitors when you do it right!"

But while such special events make big sales for Bill Lance at Vinita, Okla., the day-in and day-out selling is done by letting "electricity sell gas" and he believes that this is the biggest "business-building bet" being overlooked by the average gas dealer today.

New LPG Firm Enters California Field

The Mojave Liquid Gas Co., a new firm dealing in liquid petroleum products and equipment, has filed articles of incorporation at San Bernardino, Calif., with \$25,000 of authorized stock.

Directors are William Asa Hill and Harriet Anthony Hill, of Barstow; Ross and Marilyn Parsons, of Adelanto, and William J. Johnstone, of Victorville.

Have you run out of Prospects?

There are **Live, New Ones** on
the **Farm** and in **Every Town**



By **Irene B. Winton**
Winton Automatic Gas Co.
Beaumont, Texas



Operating the Winton Automatic Gas Co. requires numerous and varied vehicles, including passenger cars, pick-ups, installation trucks, bulk delivery and transport trucks, utility trucks, and two enormous flat-bed semi-trailers. (Four of their vehicles are not in the picture).

ABOUT three years ago, a man of our acquaintance sold out a well established L. P. gas business in the fringe of the Ozarks, because it "had reached maturity, and the thrill of developing new business was no longer there."

The great American commercial tragedy—a pioneer spirit cooped up in a business that was no longer young and growing! There was a gas bottle hooked up to practically every house in his territory.

But before we shed too many tears over this pioneer's tragic plight, let us consider two additional facts—the man who bought the business has increased the former volume nearly 400%, and his profits are far greater than his predecessor had ever made.

Pioneering in business is a state of mind—not a condition of the market.

Winton Automatic Gas Co. plant, Beaumont, Texas. Appliance store and office are located at front and center. Eleven tanks provide storage for 160,000 gallons.



As long as human ingenuity can function, there will be new products, new methods, and new opportunities in every line.

In the instance cited above, it was the change from bottle to bulk operation that opened up a whole new world of opportunities to expand. But what about the distributor-dealer who already has his business on a bulk basis, and finds that practically every "beyond-the-mains" home in his delivery area already has a tank in the yard? That problem is facing the operators in a number of regions in which the butane-propane business developed early and has become highly competitive. Somebody is delivering gas to practically every eligible home along the highways and byways. Is that territory saturated? Not by any means! We are too prone to consider that because most of the possible domestic users are buying gas, we are selling nearly all the gas that can be sold.

Because the development of the liquid gas business was centered

principally around its domestic use, we think of it mainly as a domestic fuel, but there are many applications in agriculture, business, and industry, that have scarcely been touched. Domestic use has been, and will remain, the mainstay of our business. The reason is simple. There are more present and potential customers, and more present and potential volume, in this than in any other field open to the dealer.

So we drive down the road, and we count the tanks in the yards as we pass. In our territory, more than 90% of the rural population is buying gas from our company, or from one of our competitors. As time goes on we will lose a certain number of customers—we hope not too many. To maintain our volume and our profits we must get some new business as we go along. Shall we put on a drive to take customers away from our competitors? That could develop into an unprofitable situation.

What other sources of new volume can we find? There are three which

MANY AN LPG DEALER who thinks the lush, pioneering days are over; who thinks he has drained the last bit of possible-to-get domestic business from his territory, will find here that the new agricultural and industrial fields offer even larger sales potentials than he ever had before.—Editor.

seem to be available almost everywhere. The first two — installations for new residents in our delivery area, and additional domestic services for our present customers, tend to aggravate a load balancing situation that is already a problem, and the third, the extension of agricultural and industrial uses, serves largely to offset the unbalance created by growth in the domestic field. Let us consider these in the above order.

First, the increase in population that is taking place in rural and suburban areas all over the country. We got our share of the business from the old residents, and we can

pick up our percentage of the new customers. A large number of these new residents have lived in cities, and they are accustomed to the comforts of city living. They are not going primitive just because they are going rural. They demand, and will arrange to get, their hot water, their cold drinks, and comfortable warmth during the winter.

With these new, modern homes, there is opportunity for the installation of more gas consuming appliances — if we can overcome the competitive selling strength of the electrical and the oil industries. There will be a high percentage of these home owners who prefer gas heating, but we need the primary appliance loads — cooking, water heating, and refrigeration — if we are to enjoy

about 90 gallons. Heating that average home with spot heaters brings a seasonal gallonage from 500 to 800. A central heating plant runs from 100 to 200 gallons higher. We can check our customers' accounts, and come close to telling what equipment they own. We can check their credit rating, and get a good idea what other appliances we should try to sell them.

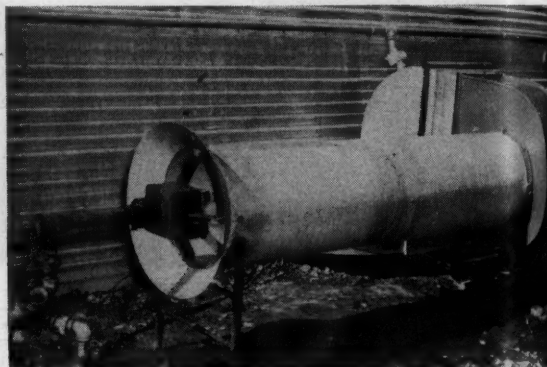
It is surprising how many of our present customers use less than 500 gallons of fuel per year. While most of our domestic customers use gas for both cooking and water heating, the majority do not own gas refrigerators. There is still plenty of opportunity to sell heating equipment of one sort or another, and central heating is still the exception rather than

taken care of, but they never stood in the way of better living. And what an improvement in living it really was! Mother had always cooked on a wood stove. Somebody had to cut and carry that wood, feed it to a ravenous fire, and clean out the ashes so the stove could go on consuming wood. During the long, hot Texas summers, getting three meals a day on a wood stove was the best possible conditioning for the worst possible hereafter. Women aged early, and most of them died young.

Gas cooking came to rural Texas as a definite move toward heaven on earth. Automatic water heaters carried the procession another step on its way. Warmth at the turn of a valve marked another milestone, and warmth without getting up in the



Sand drying plant, for preparing molding sand. Various grades are dried, and shipped in box cars to keep them dry. Provides a year-round load.



Propane is used for many purposes at the Rice Pasture Experiment Station, near Beaumont. This big burner supplies heat for drying experimental batches of rice.

year-round business from these customers. And we must have that year-round business if we are to serve these homes at a profit.

So let's consider that the new population represents the cream of the new business, but let us also recognize that we must do a lot of good, hard selling, against entrenched and highly organized competitive industries, to get this business at a profit. In developing and handling these accounts, we are not departing from the methods and procedures that we have used in the past.

The second source of increased volume comes from the use of additional appliances in homes we are now serving. In our territory, a range and water heater in an average home will consume about 240 gallons of fuel per year. A gas refrigerator adds

the rule. We have scarcely touched the new markets for incineration, clothes drying, and air conditioning.

In view of these facts, it seems an opportune time to re-examine our potential market, and perhaps revise and modernize the philosophy which guided us in the earlier stages of our business. In those days we were fired with the evangelical ideal that we were contributing to better living in the rural areas, and so we were. Now we are more inclined to think of ourselves as being in the gas and appliance business.

The best salesman that we ever had sold "better living" — comfort and convenience. His customers bought appliances and gas, so they could enjoy the kind of living that he sold. Prices, terms, and installation dates were minor details. They had to be

chill gray dawn to turn the valve was a still greater improvement. We sold all these appliances for better living on the promise of convenience and comfort.

We did all right in providing the convenience, but we have only gone part way in delivering the comfort. Our better installations have provided winter comfort for the entire house, and we have taken the curse of the wood stove out of the summer kitchen, but houses that are too hot for daytime occupancy, and too hot for nighttime sleep, are still not comfortable. It takes a machine that can provide the refrigerating capacity of some three to five tons of ice per day to make homes comfortable on humid summer days when the thermometer on the north porch cannot get down to 90.

Such a machine is available now, getting its refrigeration from gas, and it consumes a lot of gas. These air-conditioning plants cost money, but so do automobiles, and not very many of our customers get along without cars. We do not expect people to beat paths to our doors to buy air conditioners, but we have sold "better living" in the past, and we believe we can do it again.

Used in combination with central heating, air conditioning provides a well balanced year-round load. This load balance is becoming more important every year.

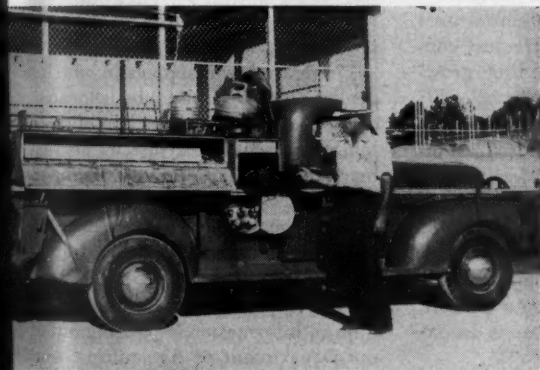
From the delivery standpoint, appliances which provide a steady year-round load have always been ideal. Cooking, water heating, and refrigeration have always been the

made considerable progress, but do not regard this as the complete answer. We want our tanks large enough to permit efficiency in setting up routes and schedules, but there are also many advantages in having our driver-salesmen see customers frequently enough to maintain cordial and friendly relations. These men are our most fertile source of leads for the sale of new gas-consuming units, both in the home and around the premises.

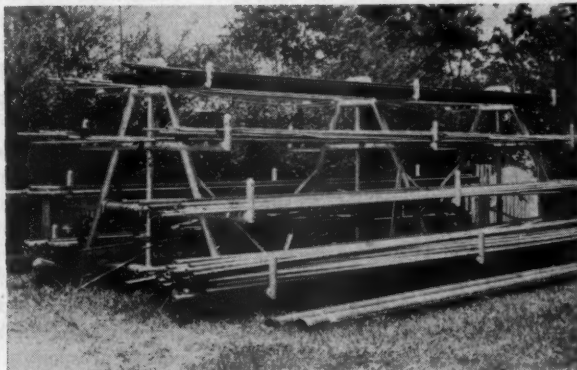
We expect unbalanced domestic consumption as long as we continue in the gas business. People can keep warm in the winter with less investment than is required to keep them cool in the summer. We want to offset the excess heating load with other outlets which provide higher summer

seems likely to be stupendous. We are only beginning to find out the advantages of drying our standard farm crops under controlled heat. Forage crops offer a tremendous potential, because with artificial drying they can be saved regardless of weather, and it is now definitely established that heat-cured fodder has higher nutritive value than sun-cured hay made from the same plants. It is worth more, because it will grow more meat and produce much more milk. Portable drying equipment designed for this service, and suitable for individual farm use, is on the market.

Corn farmers in the North Central states lost millions of dollars' worth of grain last year because prolonged bad weather made it impossible for



Installation trucks carry all pipe, tools, equipment, and supplies necessary to make an appliance installation. Howard Smith, plant engineer, beside truck.



Industrial installations require quantities of pipe of various sizes. This convenient rack, fabricated in the Winton shop, makes it easy to maintain the necessary stock.

old standbys, and they are still basic. To them we may now add the indoor incinerator and the gas-fired clothes dryer. Incinerators can be sold in many of the better homes, relieving the housewives of the inconvenience and discomfort of taking the trash out in all kinds of weather, besides adding from 7 to 14 gallons per month, each, to our deliveries. And if you have ever tried preparing the family meals during a week of rain in a kitchen full of steaming diapers, you will know why young mothers look on the clothes dryer as the greatest godsend since "twilight sleep."

For some time past we have been trying to establish balanced year-round deliveries by the installation of larger customer tanks. We have

consumption. Agricultural applications seem to offer the greatest load balancer in almost all localities. The principal farm crop in our area is rice, and while the tractor carburetion potential does not come up to that of some other leading crops, we make up for it with the water, pumping engines. The rice fields are kept flooded from planting time to maturity, and engines running day and night for several months consume big gallonage, and show large savings on LPG. We supply 1000-gallon tanks to our rice farmers, and they must be filled regularly when the pumps are operating.

Drying and dehydration of agricultural crops offer other summer outlets for L. P. gas. The extension of these uses in the next few years

most of the corn crop to be properly cured and dried before going into storage. Much of this loss could have been prevented, had the farmers had access to proper drying equipment. The same unit that dries the fodder is suitable for drying any grain crop, as well as soy beans, peanuts, sweet potatoes, and numerous other important crops, one or more of which is grown in every farming area. It seems quite likely that in the next few years these farm drying units will become almost as essential as tractors or harvesters.

Much of the rice belt depends on gas for the drying which is necessary to prepare the grain for market. Dryers located off the gas mains are fired with LPG or oil, and the latter offer good prospects for conversion.



Eight skilled service and installation men do the "field work" necessary to serve the Winton customers.

Many of the dryers operating on natural gas can also be converted on the basis of year-round economy, because the drying season is short, but in most cases the connection to the gas main requires payment of heavy standby charges during the non-operating months. There is a good chance, in these cases, that conversion to propane will reduce the annual fuel cost. This same condition must exist in many of the grain elevator installations in the corn and wheat belts.

Cotton ginning offers a similar situation. L. P. gas offers the ideal drying method, and there are gins located near, or even directly over natural gas lines, which are operating on propane for economic reasons. More important, a great many gins now operating inefficiently on oil offer potential conversions.

Tobacco curing is an ideal application for our product. Use of gas in the curing barns is still fairly new, and this market is wide open to hundreds of distributor-dealers in at least a dozen states.

Control of weeds and insect pests

by means of portable flaming devices is getting a good deal of attention, both in the experiment stations and by large scale farmers. It is applicable to both broadcast and row crops, and commercially produced equipment is becoming available.

These are all major potential uses of gas, providing their greatest consumption during the planting, growing and harvesting seasons.

There are other agricultural uses which are widespread, and which offer year-round demand. Most dairies require hot water, and many use steam for the sterilization of the milk equipment. Singeing in local poultry plants and slaughter houses consumes its day-by-day quota of fuel, and any local smoke house is an excellent prospect.

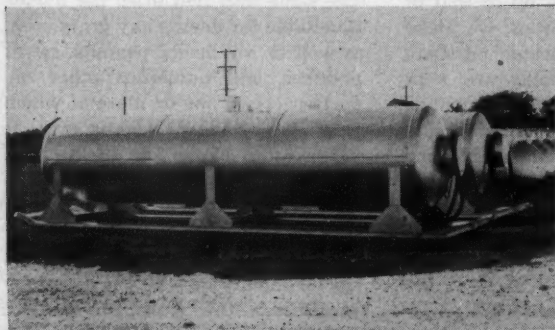
Additional uses which reach their greatest consumption during the winter season, but which offer good volume if offset by summer loads, are poultry brooding and greenhouse heating.

But there are other fuels which will do any of these jobs, and unless someone sells the gas-burning equip-

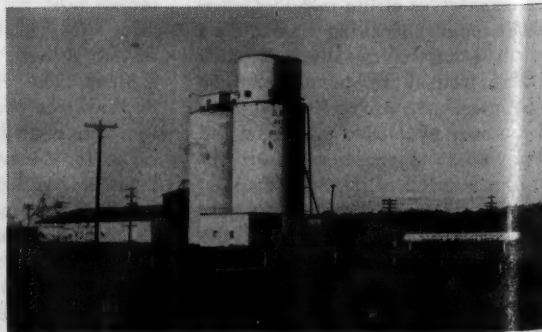
ment, the chances that these operations will be done with oil or other fuel are rather good. Fortunately, in many of the above applications the people in our industry can sell the equipment, and make the profit on the sale, and a continuing profit from supplying the gas, just as we have done in appliance sales.

There are few instances in which a dealer, no matter where he is located, cannot cash in on at least one of these major opportunities, just as a great many dealers have made an important improvement in their volume and seasonal balance by promoting carburetion sales. It will require study and work, but these are inevitable in pioneering.

More information is pouring out of the Department of Agriculture, and the state experiment stations, on the above and other potential gas consuming projects in agriculture, than the average dealer can read or digest. But in each county there is a county agent who is paid by the government to keep abreast of these developments and help the farmers to profit from them. He has tremendous influ-



Pumping water to keep the rice fields flooded consumes lots of fuel all summer long. One 1000 gallon tank goes out to supply each engine.



B. H. Willis, rice dryer at Felicita, Tex., is practically within a stone's throw of a natural gas main, yet it is more economical to operate on propane during the short drying season.



IRENE B. WINTON

ence on the farm market, and can use that influence for or against the use of our fuel wherever it is possible for oil or electricity to do the job. If he is well informed on our product, and friendly toward our company — and it is our business to see that both of these conditions exist — he will help us to demonstrate the use of these "better farming" appliances. We pay for this service in taxes, and might as well have the tangible benefits.

The other market at which we are looking includes numerous industrial applications of gas. This is a field that has scarcely been touched, but we are finding out more about it every day. There are literally thousands of applications of power and heat in industry, where our product has a chance to equal or excel other fuels. A few, like oil well drilling, are wide-

ly recognized. Metalworking, from large fabrication clear down to the local welding shop, offers numerous uses. Propane-oxygen flame is used increasingly for heavy cutting. Pre-heating of castings for welding and brazing offers a market in every welding shop where piped gas is not available. Dozens of auto wrecking shops are using large amounts of propane in cylinders for cutting up scrap, and in their various salvaging operations. The whole field of ceramics, from bricks and sewer tile to the finest china and laboratory refractories, offers tremendous possibilities. Pre-heating brick kilns alone consumes more carloads of LPG than the average distributor would imagine. Tremendous amounts are used in producing, processing, and distributing aggregates, and this market has scarcely been touched. There are many places where minerals, ranging from pumice to uranium ores, are being dried or otherwise processed with propane heat. Sawmills, lumber drying, tar heating, plastics manufacture, drying of cores and ladles in foundries, hard soldering — the list is almost endless.

New industrial business is all around us. How do we locate it quickly, so we can spend most of our time selling instead of just looking?

Whenever we see heat or power being used in industry, we should ask ourselves, "Will propane do this job quicker, better, or at less cost?" If the prospect looks favorable, dig into the facts and try to make the sale.

Suppose, for example, we equip a local roofer's portable tar kettle with a burner and tank, and it shows improved results. Who else in our territory uses tar kettles? The classified section of the telephone directory will give us a list of all the roofers. The city, county, and state have tar kettles which they use in sealing the expansion joints of concrete pavements. Some of the building contractors use tar in waterproofing foundations and basement walls. They are all prospects. They are in the phone book, nicely grouped for quick reference.

Suppose, in reading your "Butane-Propane News" you see an item about an application in a line of business which you have not sold. You will probably find one or more in every issue. Are there any of those businesses in your area? Ask the phone directory.

In prospecting for new fields for our product in industry, we are now dependent largely on our own observations and the material which our trade magazines bring to our atten-

The Winton showroom offers an attractive display of appliances for all domestic needs, plus year-round comfort from the gas circulating heater and air conditioner.



tion. As time goes on, we will need more than this. There are important applications in certain lines which will require development and proving on a scale beyond the resources of the individual distributor-dealer. Such a research program could be a logical extension of the work now being done by our associations.

Some of the applications coming to the attention of the dealer will be foreign to his past experience. That does not need to stop the sales effort. The manufacturers of the burners and carburetion equipment used in industrial sales are looking for business, just as you are. They are in position to give the help that you need, either direct from the factory, or through a local distributor. They will provide you with catalogs, and many of them will put you on their mailing lists to receive the sales promotion material which they make available from time to time.

The burner manufacturers all make standard torches and industrial furnaces which are applicable to many uses. You should be familiar with these, just as you are familiar with domestic appliances. It may be worth your while to carry a stock of those items which are in greatest demand in your community. The manufacturers will provide circulars which you can mail to known or suspected prospects.

Handling this new volume of industrial sales at a profit follows the same established laws and procedures as any other type of business. The end use of the product may be different, but the sales are made to people, who are basically the same, whether their occupation is farming, manufacturing, or "service." Proper attention must be given to accounting, inventory, credits, and collections, even in relation to the largest customers.

As long as we continue to make the progress which is the fruit of human ingenuity, there will be new uses and an expanding market for our product. "Saturation" is only an index of inertia, and of mental dry rot.

Georgia Firm Changes Name

Mr. Harvey R. Greene, owner of Green's Fuel Gas Service, Inc., Thomaston, Ga., announces that effective immediately the company's name has been changed to Greene's Propane Gas Service, Inc.



Mark Anton



Peter Anderson

Suburban Propane Acquires Utilities Distributors, Inc.

Suburban Propane Gas Corp. of Whippany, N. J., has added approximately 70,000 customers through the purchase of Utilities Distributors, Inc., and Mayflower Gas Corp. of Portland, Me. This brings the total number of customers served by Suburban to approximately 350,000.

Mark Anton, president, said that this acquisition extends Suburban's operations into Maine, New Hampshire and Vermont, states in which it previously had no distribution. Suburban has been operating its propane and anhydrous ammonia distribution out of 68 plants located principally along the Atlantic Seaboard from Massachusetts to South Carolina.

The sale of the companies was announced recently by Peter A. Anderson, UDI president. Although he and E. Martin Anderson, treasurer, are retiring from active participation, Mr.

Anton explained that no major changes in company policies and procedures are contemplated.

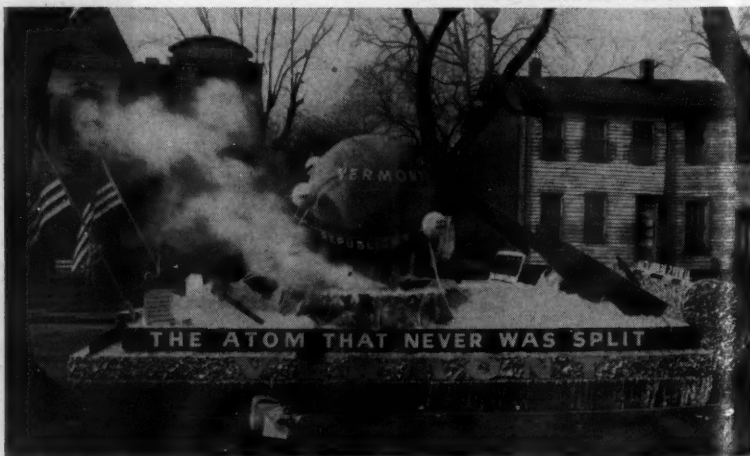
By extending its distribution into the Northeast, Suburban will improve its summer and winter load ratio. The new acquisitions will be operated as a division of Suburban Propane from the Portland, Me., office.

William F. Holmes, of the Whippany office, has been promoted to manager of this division. Suburban Propane is financing its latest purchase through working capital and private sale of bonds.

Midwest Service School Scheduled at Iowa State

LPGA's Midwest LPG service school will be held April 15-17 at Iowa State College, Ames. A fee of \$10 per student established for the short-course will cover registration, text materials, reference manuals and copies of the proceedings. Enrollment will be limited to 100. Complete details about the school may be obtained from D. L. Faber, Engineering Extension Service, Iowa State College, Ames, Iowa.

Two other educational events have definitely been scheduled for 1953 and plans for others are in the making. The Southern service school will be held the week of May 24 at Louisiana State university, Baton Rouge, La., and the Eastern service school, Sept. 9-12 at the University of Bridgeport, Bridgeport, Conn.



Propane played an important role in the animation of this float of the Vermont Development Commission in the huge parade which marked President Eisenhower's inauguration Jan. 20 in Washington. The "smoke" was actually vapor produced by dropping dry ice into tubs of water. To keep it from freezing, the water had to be heated and that is where L. P. gas came into the picture. Technicians of The Parlett Gas Co., Waldorf, Md., solved the problem by installing burners supplied with fuel from 20-pound cylinders. Theme of the float was that the Republican Party has never been split in Vermont.

Retail Credit and Collections

In Five Parts—Part Two

Eight Don'ts For the Credit Manager

- Don't be a "Gloomy Gus"
- Don't take customer for granted
- Don't be impatient
- Don't "rapid-fire" your questions
- Don't jump to conclusions
- Don't do all the talking
- Don't lose interest in applicant
- Don't raise your voice

How to Secure Information And Interview the Customer

USING a credit application is considered to be the first step towards doing credit business successfully. Most credit men say that the use of the credit application form is necessary in order to properly handle credit accounts because there are a number of advantages and reasons for its use. Here are a few of the most important values of the credit application to the credit office of the L. P. gas dealer:

1. *Serves as a permanent record.* The credit application enables the dealer to refer back to the application at a later date in case of "skips", as there probably will be information thereon to help locate the debtor. It helps as a means of identification since his signature will appear on the application. Also, this record affords some firms a mailing list to solicit additional business, enabling an increase in sales volume.

2. *Gives more information about the applicant.* A complete credit application will produce detailed customer information which would not be secured otherwise. Getting the applicant's full name spelled correctly, his exact mailing address, where he works, personal data, and other items of importance to the credit question are essential.

3. *Helps evaluate the applicant.* Through the credit application the

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dealer secures factual information which can be used as a guide in accepting or rejecting the customer. It provides pertinent data concerning the applicant's ability to pay the account when it becomes due. Careful evaluation based upon the credit application is an important step in credit selling.



A "poor" personal reference can be tip-off to a "poor" credit risk.

4. *Impresses the customer.* By being businesslike, requiring references, getting the customer's signature, and discussing various items pertaining to the credit application, the credit manager or interviewer can do the following:

- a. Express the importance of the obligation.
- b. Explain credit terms.
- c. Convey the thought that the dealer expects payment.

The customer is impressed with the responsibility of the account and will pay his account more promptly.

5. *Contributes to the files of the credit bureau and the credit structure of the locality.* With all merchants in a city using the credit application, more detailed information can be furnished the local credit bureau, speeding up identification of records, better credit reporting and verification of data already listed in the bureau files. In addition, use of the credit application helps build up the credit structure of the entire locality because poor credit risks, or dead-beats, as they are known, will be controlled to a greater degree.

The credit application should be taken from the applicant at the beginning of his credit buying, as it is much easier to secure the information from him at that time than it is after the account has been started.

The customer is more willing to give the information when he is first applying for the account, and it is considered better to complete the application by interviewing the applicant than it is to have him fill it out himself.

This procedure gives the credit grantor an opportunity to talk to the customer, look him over and obtain more complete information. Then too, some customers object to filling out forms, or even writing their own checks. The large majority of credit applicants do not object to being interviewed for the purpose of establishing a credit account, and those who do object generally prove to be poor credit risks.

The items comprising the credit application form vary from one type of firm to another, depending upon the need for certain information. Some dealers like to obtain a detailed application, while others only require the basic data necessary to open the account. Certainly, there are some essential items that should be included in every application form. The full name of the customer, correctly spelled, should always be secured; his present mailing address; how long he has lived there and if less than five years, his former address; whether he is married or single, as married men are generally considered the better credit risks; telephone number for collection purposes later; an estimate of the customer's age for identification; his occupation; his present employer or employment and, if advisable, the name of his boss or supervisor, plus length of service, and, if less than five years, his former employer.

Income is an important item to obtain and great care should be given to the way in which this question is asked. Use the word income instead of salary as it is a smoother sounding word and many individuals have other sources of revenue besides their salary.

"Now for the purpose of establishing your account, Mr. Doe, could we have an estimate of your income, please," is generally a good way to state the question and get a prompt reply. If, however, the customer hesitates to answer, pass on to the next question and come back to this item later or leave it out completely, as some customers are very reluctant to give information concerning their income.

CONSUMER STATEMENT For Charge Account			
Applicant Date _____		Wife's Name _____	
Full Name _____		How Long _____	
Present Address _____		Phone _____	
Occupation or Employer _____		Position _____	
Former Address _____		How Long _____	
Former Occupation or Employer _____		How Long _____	
<input type="checkbox"/> Owns Home <input type="checkbox"/> Buying Home <input type="checkbox"/> Rents <input type="checkbox"/> Boards <input type="checkbox"/> Lives with Parents If buying or renting home — Name of Finance company or landlord: _____			
Income \$ _____ <input type="checkbox"/> Weekly <input type="checkbox"/> Semi-monthly <input type="checkbox"/> Monthly			
Is Wife or Husband Employed _____			
Other Income _____			
Number of Dependents _____			
Name of Nearest Relative _____			
Address of Nearest Relative _____			
References (Exact name in which accounts are carried) _____			
Bank _____ <input type="checkbox"/> Checking <input type="checkbox"/> Savings <input type="checkbox"/> Loans			
I hereby make application for a Charge Account, to be settled at the office			
of _____ (Name of Firm) _____ (City) _____ (County) _____, Texas.			
not later than the Tenth Day of the Month following purchase, unless other specific arrangement is made.			
Date Approved _____		Signature _____	
Manager of Credit Sales			

Application Form No. 1.

Credit references where the customer has had other charge accounts should be included. Usually, three such references are sufficient; however, additional ones may be secured if advisable.

A *banking reference* is good information to obtain; secure the name of the bank and type of account the customer has, that is, checking, savings or personal loan. With this information, the local credit bureau checker can go directly to the proper bank department, eliminating rechecking and possibly preventing a "no record" report. Most banks want to be helpful and will give the information desired.

Personal references of at least two individuals who are closely acquainted with the applicant will be helpful in cases where no credit references

are given. These personal references can be checked for character background of the customer and in cases where the customer "skips".

The wife's first name should be required for identification. The number of persons dependent on the customer and whether or not his wife is working are very essential to consider in granting credit.

Amount of credit desired by the customer is another item that should be discussed and agreed upon, so that both the customer and the dealer will have some idea of the amount of the account each month. All credit applications should include a clause stating, "I understand that my account is due and payable to Blank L. P. Gas Co. in Blank, U.S.A., by the 10th day of the month following purchase," and the applicant's signature affixed. This seals the credit agreement and makes the account payable at the creditor's place of business.

There are other items which some credit grantors require, depending upon the kind of merchandise being sold, size of the account, and other factors. Some of these items determine if the applicant is home owner or renter or owns real estate. Have him name nearest relative; list other obligations he may have; and indicate his insurance company. (See Form 1.)



A working wife helps credit standing.

The Credit Interview

The credit interviewer should be one of the most important employees in your office or organization, be-

cause customers may be lost due to the interviewer's lack of personality, tact, courtesy and appreciation for the business. Interviews with credit applicants should be made in privacy where other customers and even other employees cannot hear the conversation. The customer will talk more freely, give better information, and feel more friendly toward the dealer when the interview is carried out in privacy. During the interview there are a number of things that should be done, such as:

1. **SMILE.** Smile naturally, if possible, but a forced smile is better than no smile.
2. **INTRODUCE YOURSELF AND REPEAT THE APPLICANT'S NAME.** During the interview repeat the applicant's name several times in the course of questioning.
3. **PUT THE CUSTOMER AT EASE.** Make the customer feel at home by offering a newspaper or magazine, if you are busy. Recognize his presence, if you must keep him waiting.
4. **BE CORDIAL.** Show the customer that his visit is appreciated. Treat the customer as a good host would a visitor.
5. **BE TACTFUL.** Do not ask questions bluntly. Come in the "side door" on some questions and in the "back door" on others.
6. **BE CASUAL.** You may be rushed, but try to "take it easy." "Assembly line" production will work with things, rarely with humans.
7. **BE COURTEOUS.** Even if the applicant should be difficult, do not lose your poise. Courtesy will always pay dividends.
8. **BE SALES-MINDED.** You are a credit salesman, not a policeman. The applicant's record will determine his worthiness. Not your opinion of him.
9. **SHOW APPRECIATION.** Even if you may later reject him, thank him for coming into your store. If the account is accepted, show him you sincerely value his business.
10. **CAREFULLY EXPLAIN CREDIT TERMS.** Thorough explanation of the credit agreement will start a good customer off right. If an open account is

granted, explain when books are closed, statements are mailed, accounts are due and accounts are considered delinquent. If a deferred payment transaction is agreed upon, explain when the payments are due, amount of carrying charge, and that no statements will be mailed prior to due date.

11. **IMPRESS THE CUSTOMER WITH IMPORTANCE OF PROMPTNESS.** Explain that if it is not convenient for him to pay in person, he may send his remittance by mail. Point out that remittances should be mailed in time for them to be received on the date due (particularly adaptable in deferred payment procedures).

12. **IN CASE OF REJECTION.** Tactfully but specifically explain the reasons for his being turned down. Show him how he can restore his credit standing. If he has too many other obligations, show him on paper how difficult it will be to assume additional obligations. If his credit record is at fault, it will be a detriment to any further credit transactions. Review the firm's requirements for opening an account. Explain that you are anxious to have him as a credit customer, but his credit record as reflected by the credit bureau will not permit you to sell to him. Tell him the bureau is anxious to help him clear his record—that his record will follow him wherever he goes. Suggest that he visit the bureau if there is any question concerning the report. Try to keep him as a cash customer. Express the wish that the applicant will not blame the firm for being unable to complete the transaction, pointing out that the firm is anxious to secure new accounts and that considerable money is spent each month in this effort. But the applicant's record is the only thing standing in his way. Invite him back, you may be able to serve him at a later date.

During the interview a number of things should NOT be done:

1. *Don't be a "Gloomy Gus".* A smile costs nothing, but may be worth much.
2. *Don't take the customer "for granted".* Each customer is an indi-

vidual, a king in his own right.

3. *Don't be impatient.* Pass up a difficult question momentarily, and come back to it later.

4. *Don't be a "rapid fire" questioner.* The applicant must have time to give the answers.

5. *Don't reflect premature opinions.* The customer may be poorly dressed, but may be a good cash customer if credit cannot be extended. Wait until the interview or investigation is completed before forming opinions.

6. *Don't do all the talking.* Let the applicant talk and he may tell you more than you would ask.

7. *Don't assume responsibility for not being able to grant credit.* Your firm is not to blame; it is the applicant's credit record.

8. *Don't lose interest in the applicant.* Even though you are unable to extend credit, still show a deep personal interest in his problems. Try to help him.

9. *Don't fail to see that the applicant understands the terms of the credit agreement.* A little time now may save dollars later.

10. *Don't raise your voice.* Maintain a pleasant attitude during the entire interview. Be calm. Where possible, agree with applicant. If the applicant wants to "rave" when you turn him down, let him "rave". Don't interrupt him. When he "runs down" you will have your chance. Be a good listener.

11. *Don't fail to see that he gets the merchandise without delay.* Be sure the sales department is notified. There should be no slip-ups. In case of large items to be delivered, see that the usual prompt service is given. Remember the initial sale is made, but your firm must continue to "sell" the customer.

12. *Don't fail to point out the various services rendered by your store.* If free services are offered, tell the customer about them. A booklet listing the services may be given to the customer. In addition to the services listed in the booklet, your credit policy should be included, plus any sales appeal.

In conclusion, the securing of basic credit information and properly interviewing the credit customer is highly important to successful L. P. gas dealer operation, since surveys show that a high volume of sales is done on a credit basis.



SAFETY MEETING • No. 3

Suggested Program

- 1—Complete the attendance record, noting any absentees.
- 2—Report on corrections made on any unsafe conditions or practices discussed in previous meeting.
- 3—Discuss any new safety problems which may have arisen since the last meeting.
- 4—Analyze any accidents which may have occurred since the last meeting. Do not embarrass employees before the group by "fixing blame", but show what should have been done to prevent the accidents.
- 5—Discuss "Insurance Is Necessary, But Safety Is the Best Policy" (which appeared in the March issue).
- 6—Announce date, subject, sources of material, and study assignments for the next safety meeting.

DISCUSSION GUIDE FOR "Insurance Is Necessary, But Safety Is the Best Policy"

1. Discuss the problems presented on page 69 of the March issue, and the answers given on page 127 of this issue. If employees do not agree with the printed answers, have them state their reasons.
2. Discuss similar problems which have occurred in your own business, or any that you can cover adequately that have occurred in other operations.
3. Have the employees establish the correct order in which the following steps should be taken in case they should ever need to take charge of a situation resulting from a dangerous leak that had not been ignited:
 - Arrange to keep people out of the danger zone.
 - Stop the leak.
 - See that sources of ignition in the danger zone are extinguished.

4. Discussion of safe driving habits, including answers to the following questions:

Can we always trust other drivers to take the actions indicated by their arm signals?

At what speed is it safe to cross a blind intersection?

How would you signal to a motorist overtaking you rapidly in the right hand lane that you are about to make a left turn?

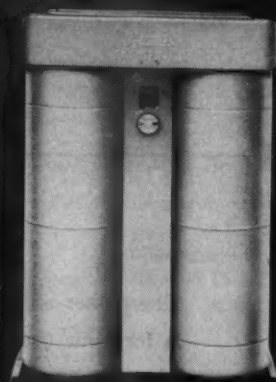
If you are about to enter an intersection, and you have the right of way, what will you do if you see another driver trying to beat you to the intersection?

What distance should you maintain from the next vehicle ahead in a line of vehicles behind a truck on an open highway?

What would you do if you were driving the delivery truck behind a cargo truck and discovered that his load was on fire?

The chairman of the meeting should be alert to keep the discussion moving fast, change to the next subject as soon as each has been adequately covered, and watch the time to keep the meeting from running too long.

Let's make every
yard installation
SAFE!



SAFETY MEETING



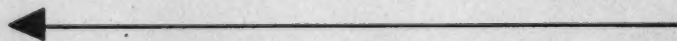
The poster on the other side of this page
is for your use in announcing the Safety
Meeting covering

**"How To Make
Yard Installations Safe"**

(See opposite page)

Fill in date and hour of your meeting, and
pin on bulletin board.

** Another poster comes next month.*





How to Make Yard Installations Safe

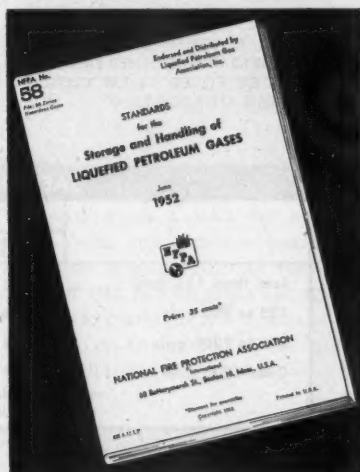
By Carl Abell

THERE are several factors to be considered in making an installation of an L. P. gas fuel system at a customer's home. The first of these is safety. After that come such matters as the customer's preference as to location, the size or number of the containers, accessibility for filling of the tank or replacement of cylinders, the running of piping in the yard and house, and protection of containers against weather. All of these related matters are subject to negotiation with the customer. Only factors related to safety are covered by "regulations".

The primary source of all regulations governing the installation of L. P. gas containers is the National Fire Protection Association. For convenience, its name is abbreviated to "NFPA". This is a separate association operating in behalf of numerous associations interested in fire protection and fire insurance problems. Its publication, "Standards for the Storage and Handling of Liquefied Petroleum Gas," is known as "NFPA Pamphlet No. 58". This pamphlet is revised and republished from time to time, as the need becomes apparent. The current issue is dated June, 1952.

The Bible of Safety

NFPA Pamphlet 58 has been adopted in total by the National Board of Fire Underwriters, and this organization republishes it for the use of insurance company representatives and others as NBFU Pamphlet No. 58. Since the text of the two pamphlets is identical, either copy may be used, and our future references to Pamphlet 58 will apply to either.



Pamphlet 58 is the safety guide for the industry.

Pamphlet 58 is the "bible of safety" in the L. P. gas industry. Its status is so firmly established and so widely accepted that it has been adopted as published, or incorporated with minor revisions, as the basis of nearly all state laws and municipal ordinances governing the handling, storage, transportation, and use of L. P. gas. While the NFPA does not write the laws, the laws are based on its recommendations, and in nearly all cases when the regulations in Pamphlet 58 change, the laws change with them.

The Liquefied Petroleum Gas Association has been very active in trying to secure the passage of model laws and ordinances, and these are based on Pamphlet 58. The inspection programs of the various insurance companies dealing in L. P. gas coverage are also based on the provisions of the pamphlet.

While the NFPA, NBFU, and LPGA cannot tell any operator what he must do, it is wise for every operator, and every employee in the

industry, to be thoroughly familiar with Pamphlet 58, as well as with the state and local regulations, and to carry out both the letter and the spirit of the pamphlet and the legal regulations.

The paragraphs in Pamphlet 58 which should be followed in making domestic fuel system installations are scattered through several sections, and those covering the piping and appliance installations are similarly distributed through several pages.

Good Practices Booklet

For the convenience of men making installations in buildings of piping and appliances, the LPGA has assembled the pertinent paragraphs into a separate booklet, in which these regulations are presented in a convenient sequence, so they may be more easily found and understood. In addition to NFPA material, they have included a great deal of other matter based on the experience of their member companies, which can be best described as "good practices". This booklet is known as "Recommended Good Practice Rules for Liquefied Petroleum Gas Piping and Appliance Installations in Buildings". Since this name is inconveniently long, it is more frequently spoken of as "Recommended Good Practices", or even more briefly as "LPGA No. 1". This booklet is available to all at a cost of 20 cents per copy. Because of its convenient arrangement, and its completeness, we recommend that all distributors and dealers making domestic installations of appliances provide their employees with copies of the booklet on recommended good practices.

While there has been a great deal of good material published on the safe practices in installation of fuel supply systems on customers' prem-

ises, we have not found any one publication on this subject that does the job as well as LPGA No. 1 which covers matters pertaining to house piping and appliance installation. In this assignment, we will endeavor to consolidate all material available for yard installation. Next month we will discuss indoor installations. Because it is much easier to remember instructions if the reasons for the rules are understood, we will also endeavor to supply them.

The information pertinent to the installation of customer fuel systems is contained in the following portions of Pamphlet 58: Sections B.5, B.6, B.7, B.9, B.12, Division 1, and Division 2.

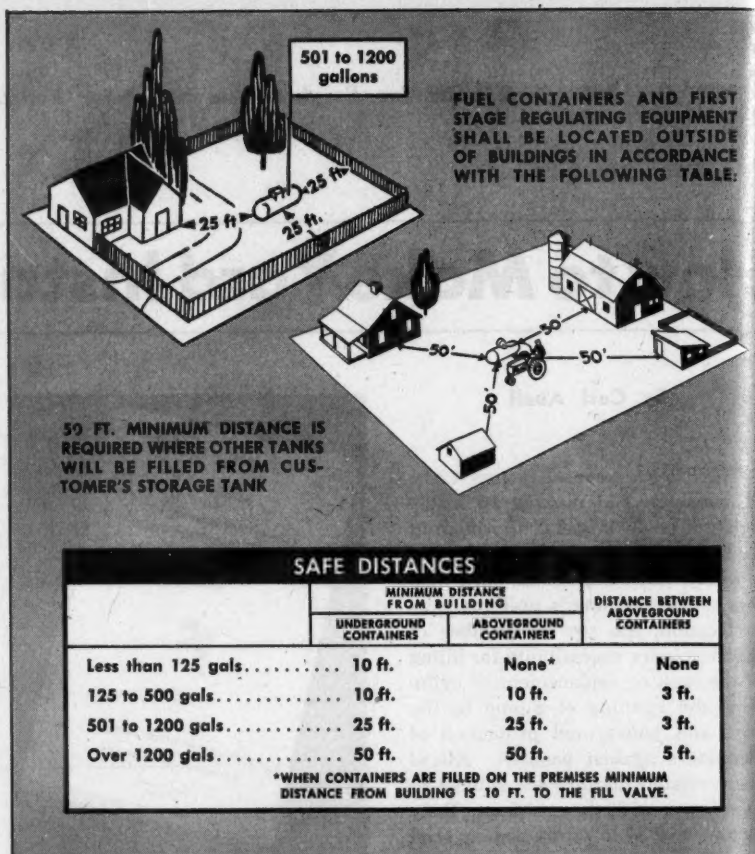
In making an installation, the first problem is the selection of the location for the container or containers. In the Basic Rules we find the following:

B.5 Location of Containers and Regulating Equipment

(a) Containers and first stage regulating equipment shall be located outside of buildings other than those especially provided for that purpose. Except as herein provided, each individual container shall be located with respect to nearest important building or group of buildings or line of adjoining property which may be built on in accordance with Table 1.

Down in paragraph (f) of Section B.5, we find the following exception to this table of distances, which will most frequently apply to farm installations in which the same tank is used for domestic and tractor or vehicle fuel service:

(f) Any container used in domestic or commercial service, where

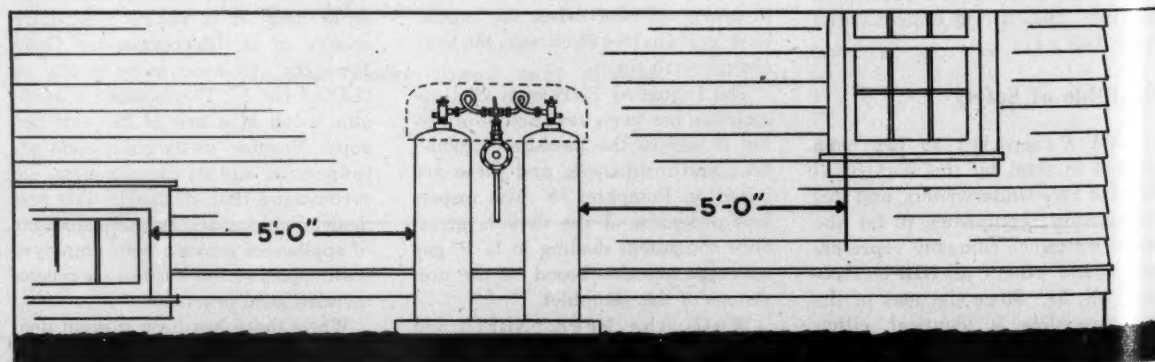


transfer of liquid is made from such containers into portable containers such as on tractors, skid tanks, and similar applications shall be located not less than 50 feet from the nearest important building. Special attention shall be given to maintaining the above distances on such transferring in trailer camps with respect to any trailer, except as provided in paragraph 6.12.

While there is nothing in Table 1 referring specifically to cylinders, we find in Division I the following paragraph:

1.3. Location of Containers and Regulating Equipment

(a) Containers (meaning cylinders here) shall not be buried below-ground. However, this shall not prohibit the installation in a compart-



Cylinders must be installed at least 5 ft. away from any opening lower than the valves or regulator.

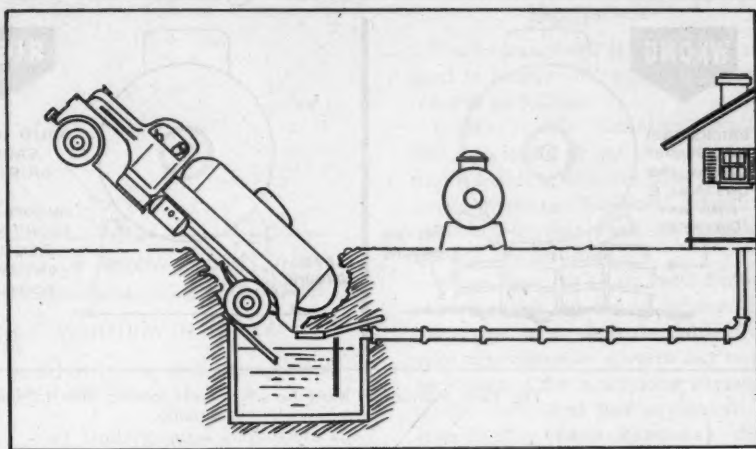
ment or recess below grade level, such as a niche in a slope or terrace wall which is used for no other purpose, providing the container and regulating equipment are not in contact with the ground and the compartment or recess is drained and ventilated horizontally to the outside air from its lowest level, with the outlet at least five feet away from any building opening which is below the level of such outlet.

Except as provided in Sec. 1.7, "the discharge from safety reliefs shall be located not less than five feet horizontally away from any building opening which is below the level of such discharge. Discharge from any safety relief device shall not terminate in any building, or beneath any building unless such space is well ventilated to the outside."

Locate for Safety

There is nothing here which prohibits the installation of cylinder systems next to houses, but there is a very definite prohibition of installation in a location where it might be possible for gas which escapes in changing cylinders, or in case of natural discharge through a safety relief, from going into an opening in the building before it is diffused below the lower limit of flammability. Your knowledge of the nature of L. P. gas (*Butane-Propane News*, Feb., 1953, page 47) will show the soundness of this regulation, and also show that the requirement for horizontal ventilation at the base of a cylinder set in a niche is a precaution against a possible flash fire in a pocket of gas which might accumulate there if the ventilation did not provide a means of diffusion.

In the case of larger storage tanks, we can see that with the larger safety relief valves, a discharge might release more fuel, and a greater distance from possible sources of ignition will be necessary to insure diffusion below the combustible level. While discharges through safety reliefs are very rare, and the majority of tanks never develop enough pressure to cause such loss of fuel, there is another very important reason for the location of tanks at the specified minimum distances from buildings—the buildings might burn, in which case there could be a "mutual exposure hazard". The heat of the burning building could raise the pressure



The cesspool hazard should be avoided.

in the tank to the point where the safety relief valve would discharge. We want these tanks far enough away from any possible source of heat that the quantity of fuel discharged will not be great enough, if ignited, to carry the fire to any other building, or to add to the conflagration of the building that is already burning.

No Weeds in Ten Feet

There is another clause in Section B.5 which relates closely to the above consideration:

(g) "Readily ignitable material such as weeds and long dry grass shall be removed within ten feet of any container."

While the examples quoted are weeds and grass, it does not stop there. It should be understood to include all forms of trash, wood, or any other combustible material, and there are no exceptions to the type of containers to which it refers. Cylinders are included, as well as bulk tanks. If such a hazard is found within ten feet of the container location, no cylinder should be changed, or no tank should be filled, until the combustible material has been removed to a safe distance.

The bulk storage tank should be so positioned that in case gas should escape from the filling connection or from a ruptured hose during filling, the leaking fuel will not be directed against any adjacent building.

Nothing is said in the regulations about accessibility of the container locations for delivery service. The distributor or dealer will naturally prefer to locate them where it will

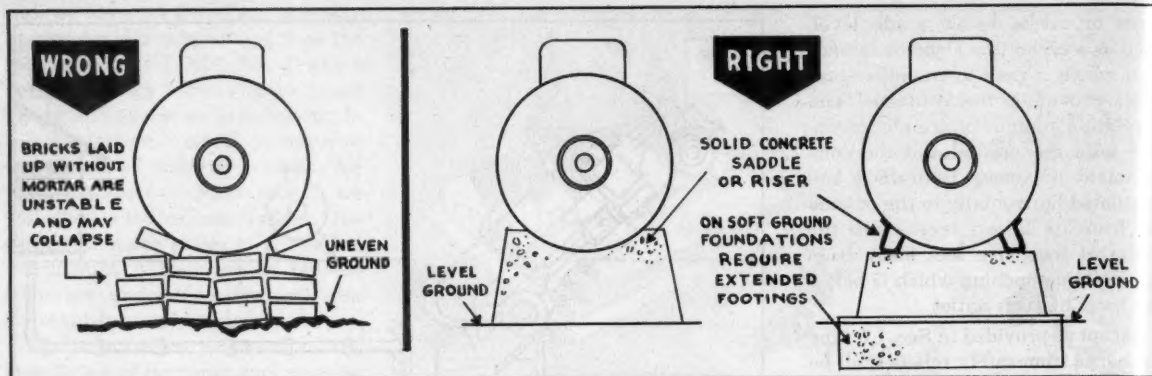
be convenient to bring in the replacement fuel, whether in cylinders or by bulk truck. When coming in to make deliveries, the trucks should be kept on established driveways if possible, and the more nearly level the route from the truck to the container location can be kept, the safer and easier the refueling will be, particularly where icing of the walk or ground can be expected. Locations subject to deep snow drifts should be avoided if possible. And where trucks must be turned around in yards, the location of any cesspool or underground cistern which might be driven over should be known by the driver. (Some distributors who have had trucks drop into these cavities go so far as to put a diagram of the customer's yard on the delivery card, with all such danger spots clearly marked.)

Driveway Accessibility

While it is desirable to locate the customer's tank where it will be readily accessible from an existing driveway, common sense should tell us that it will be safer to put it far enough back that there will be no possibility of damage from any passing vehicle. Paragraph 2.11 says:

"When damage to L. P. gas systems from frequent fast moving vehicular traffic is a possibility, precautions against such damage shall be taken."

This same situation sometimes exists in bulk plants where driveways must be close to tanks, and the standard precautions are high curbs or substantial crash posts or heavy fences.



The tank foundation must be solid, with footing able to carry the load without sinking.

Foundation and Supports

With reference to cylinder installations, Pamphlet 58 says, (Paragraph 1.3.(b)):

"Containers shall be set upon firm foundation or otherwise firmly secured; the possible effect on the outlet piping of settling shall be guarded against by a flexible connection or special fitting."

While the wording of the above does not specifically say so, inspectors for insurance companies and regulatory bodies are sometimes inclined to consider wooden bases as unsuitable for cylinder foundations, by interpreting the paragraphs prohibiting the close presence of readily combustible materials as applying to planks. Wood does not make a durable foundation unless it is treated against rot, and the treating materials in common use are generally quite combustible. Concrete or stone slabs, bricks or concrete blocks set in cement to form solid slabs, are always acceptable. Many operators prefer corrugated Transite bases or similar fireproof devices on account of low cost and convenience of transportation due to light weight. These seem to be particularly advantageous in cold climates because their structure reduces the likelihood of the cylinder rings becoming solidly frozen to the foundations.

The need for horizontal drainage at the base of the tank has already been mentioned, and this is particularly important in colder climates. Many personal injuries have been incurred by slipping on ice or frozen ground while attempting to free cylinders that have become frozen solidly to the foundations.

The provisions governing the installation of foundations and sup-

ports for domestic and other customer bulk tanks are contained in Pamphlet 58, Division II. The paragraphs applying to aboveground tanks are as follows:

2.6(a) Containers installed aboveground except as provided in Para. 2.6(f) shall be provided with substantial masonry or noncombustible structural supports on firm masonry foundation.

(b) Aboveground containers shall be supported as follows:

1. Horizontal containers shall be mounted on saddles in such a manner as to permit expansion and contraction. Every container shall be so supported as to prevent the concentration of excessive loads on the supporting portion of the shell. Structural metal supports may be employed when they are protected against fire in an approved manner. Suitable means of preventing corrosion shall be provided on that portion of the container in contact with the foundations or saddles.

2. Containers of 1200 gallons water capacity or less may be installed with non-fireproofed ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the container shell to the ground does not exceed 24 inches.

(c) Any container may be installed with non-fireproofed ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the container to the ground does not exceed five feet, provided the container is in an isolated location and such installation is approved by the authority having jurisdiction.

(f) Containers with foundations attached (portable or semi-portable containers with suitable steel "runners" or "skids" and popularly known in the industry as "skid tanks") shall be designed, installed and used in accordance with these

rules subject to the following provisions (See also Sec. 3.16):

1. If they are to be used at a given general location for a temporary period not to exceed 6 months they need not have fire-resisting foundations or saddles but shall have adequate ferrous metal supports.

2. They shall not be located with the outside bottom of the container shell more than 5 feet above the surface of the ground unless fire-resisting supports are provided.

3. The bottom of the skids shall not be less than 2 inches or more than 12 inches below the outside bottom of the container shell.

4. Flanges, nozzles, valves, fittings and the like, having communication with the interior of the container shall be protected against mechanical injury.

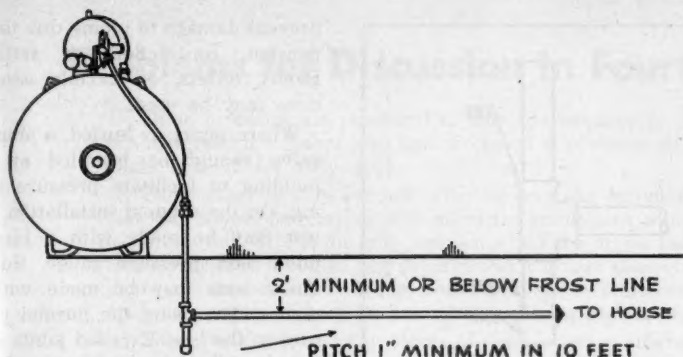
Note: It is recommended that such containers should have outlets only in the heads.

5. When not permanently located on fire-resisting foundations, piping connections shall be sufficiently flexible to minimize possibility of breakage or leakage if container settles, moves, or is otherwise displaced.

6. Skids, or lugs for attachment of skids, shall be secured to container in accordance with the code or rules under which the container is designed and built (with a minimum factor of safety of four) to withstand loading in any direction equal to four times the weight of the container and attachments when filled to the maximum permissible loaded weight.

(h) For aboveground containers secure anchorage or adequate pier height shall be provided against possible container flotation wherever sufficiently high flood water might occur.

Under paragraph 2.6 (a) the requirement that the tank or its supports shall be on a firm masonry foundation is not met by setting it on piles of cement blocks laid up without cement. Such a foundation



The primary regulator should be firmly attached to the tank. Piping should slope to the container if possible.

might collapse or topple in an earthquake or a high wind, or the tank might be knocked off accidentally by any slight impact. In any case, the connected piping could be broken or damaged, allowing the escape of fuel or interrupting service to the customer.

Foundations for horizontal tanks should be made level, and on soft ground they should be supported by adequate footing to prevent settling. Any deviation from the level position will make end-mounted liquid level gauges and outage gauges give untrue readings, and in some cases may lead to over-filling of tanks, which is a hazard that should always be avoided. Even the temporary foundations for skid tanks should be carefully leveled, as these tanks are generally manufactured with the valves and gauges at or near the end.

Underground Containers

As noted in Table 1, underground tanks must be at least 10 ft. from the nearest building or line of adjacent property that may be built upon. Pamphlet 58, Div. II, paragraph 2.6, contains these additional requirements for installation of underground tanks:

"(d) Containers buried underground shall be so placed that the top of container is not less than 2 feet below the surface of the ground, except that where ground conditions make compliance with this requirement impracticable, installation shall be made otherwise to prevent mechanical injury. It will not be necessary to cover the portion of the container to which manhole and other connections are affixed. When necessary to prevent floating, containers shall be securely anchored or weighted.

(e) Underground containers shall be set on a firm foundation (firm earth may be used) and surrounded with soft earth or sand well tamped in place. As a further means of resisting corrosion, the container, prior to being placed underground, shall be given a protective coating satisfactory to the authority having jurisdiction. Such protective coating shall be equivalent to hot dip galvanizing, or to two preliminary coatings of red lead followed by a heavy coating of coal tar or asphalt, and the container thus coated shall be so lowered into place as to prevent abrasion or other damage to the coating."

The proper venting of safety relief valves on underground tanks presents a problem which is not present in aboveground installations and this must, of course, be taken care of at the time of installation. The applicable paragraphs will be found in Div. II, 2.3. (d):

"(d) On underground containers of more than 2000 gallons water capacity, the discharge from safety relief devices shall be piped vertically and directly upward to a point at least 7 feet above the ground.

1. On underground installations where there is a probability of the manhole or housing becoming flooded, the discharge from the vent lines should be above the possible water level. All manholes or housings shall be provided with ventilated louvers or their equivalent, the area of which openings equaling or exceeding the combined discharge areas of the safety relief valves, fuse plugs and other vent lines which discharge their content into the manhole housing.

In locations where the ground is subject to periodic flooding, or where the groundwater level is above the bottom of the tank, the use of aboveground containers should be recommended."

Location of Regulating Equipment

The language of Pamphlet 58 in regard to location of regulating equipment is as follows:

B.12(a)3) "In domestic installations, no liquid or gas shall be piped into a building at more than 20 p.s.i. gauge pressure. The initial pressure reducing devices shall be installed outside the building."

Since pipe, tubing, and fittings carrying gas or liquid where the pressures may reach the tank pressure of propane on a warm day must be designed for a working pressure of 250 p.s.i., and this equipment is considerably more expensive than the 125 p.s.i. equipment that is permissible with gas at lower pressures, it is obviously more economical to reduce the pressure, by means of the primary regulator, as close to the container as possible, thus permitting the use of the lower specification piping and fittings throughout more of the system.

Regarding cylinder installations, Division I, 1.4(b) says, "Regulators and low pressure relief devices shall be rigidly attached to the cylinder valves, cylinders, supporting standards, the building walls or otherwise rigidly secured, and shall be so installed that the elements will not affect their operation."

While there is no required location specified for regulators in domestic bulk tank systems, the following paragraph appears as one of the conditions under which excess flow valves are not required in service withdrawal lines of tanks of less than 1200 gallons gross capacity:

"An approved pressure-reducing regulator is directly attached to the outlet of the shut-off valve and is rigidly supported, or that an approved pressure reducing regulator is attached to the outlet of the shut-off valve by means of a suitable flexible connection, provided the regulator is adequately supported and properly protected on or at the tank."

This adds up with all the other factors to indicate that the ideal location for the regulator, from the safety standpoint, as well as for economy, is as close to the outlet of the tank as possible. As indicated above, there must be a shut-off valve between the tank and the regulator, and this, together with all intervening fittings, must be designed for 250 p.s.i.

Installing the Yard Line

Since the regulations covering yard piping are somewhat scattered in Pamphlet 58, and are complicated by including several exceptions, we will summarize the pertinent points instead of quoting the paragraphs.

All yard piping between the primary regulator and the house must be suitable for a working pressure of not less than 125 p.s.i. The piping, fittings, and valves must be of a type approved for use with L. P. gases, and the pipe may be of wrought iron, steel, brass, or copper. Cast iron fittings are not permissible anywhere in the L. P. gas system, and aluminum tubing, which is allowed within the building, is prohibited for exterior installation.

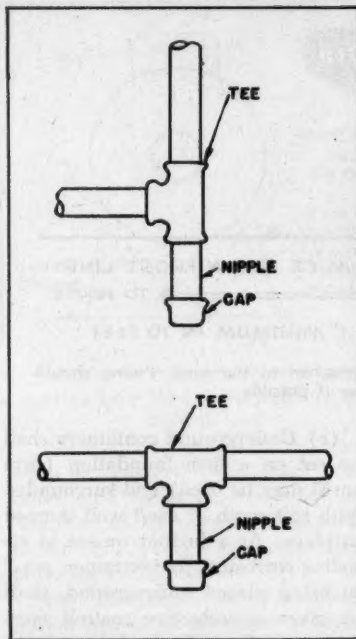
Pipe joints may be screwed, flanged, welded, soldered, or brazed with a material having a melting point exceeding 1000° F. Screwed joints will be made in almost all cases, and these should be made up with a compound that is insoluble in L. P. gas. The compound helps to make a perfect seal, and protects the threads against corrosion. Since it does not set up permanently, it is possible to remove valves or fittings at any time.

It is particularly important to thread the pipe ends so a tight joint with adequate strength may be secured. Cutting too many threads on a pipe end may cause looseness in the joint, and threading too few may make a weak joint. The specifications of the American Standards Association, ASA B2.1-1942 should be followed.

Underground lines should be installed below the established frost line, to prevent stresses when the ground heaves during thaws. A minimum depth of 2 feet should be maintained, as protection from possible damage due to digging in the yard or strains due to the passing of vehicles where the line runs under a driveway.

Where butane or butane mixtures are used, and in all installations in cold climates, a drip pocket is installed in the yard line to collect and revaporize any condensed fuel which may be in the line. This is installed at the lowest point in the line, and all piping should be pitched downward toward the drip at a 1-in. in 10-ft. grade.

Underground piping should be pro-



A "drip" should be installed at the lowest point in the piping.

tected against corrosion by coating with protective materials, and care should be taken to prevent damage to the coating when backfilling the ditch.

Aboveground piping is permissible, but it should be well supported, protected against injury, and painted to prevent damage by weather. Long runs of aboveground piping should be avoided on the general theory that if less pipe is exposed, there is less possibility of accidental damage.

Some means should be provided to

prevent damage to piping due to expansion, contraction, or settling. Bends, offsets, or flexible connections may be used.

Where piping is buried, a shut-off valve should be installed at the building to facilitate pressure testing. On the original installation, the test may be made with a bicycle pump and pressure gauge. Subsequent tests may be made with a manometer, using the normal pressure in the line. Exposed joints may be tested with soapy water—flame should never be used, even in the original test, as this practice is likely to lead to carelessness when testing with gas in the line.

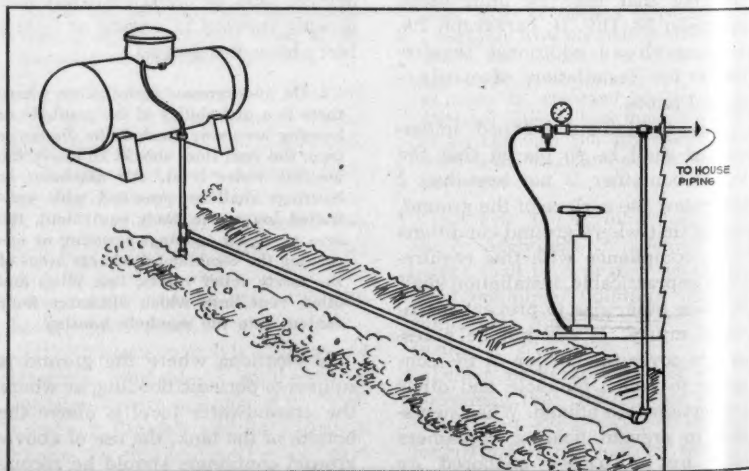
Many householders will prefer to install their own yard piping as a matter of economy. If the distributor is willing to accept this arrangement, the man making the installation should receive careful instructions covering all the requirements before the work starts. The pipe should not be covered until the distributor's representative has had the opportunity to inspect and test the installation, to see that it conforms to all the regulations, and that it is gas tight.

Gas Meter Installations

The following is quoted from the LPGA Recommended Good Practices Booklet:

Location

a. Gas meters should be installed as near as practicable to the point where the service enters the building and should be so located as to be



All piping should be tested under air pressure before turning on the fuel.

Problems for Discussion in Fourth Safety Meeting

These problems are presented to help the employee to apply the material contained in this assignment, together with that discussed in previous safety meetings, to situations which might arise in his daily work.

While many drivers are not called on to make installations, it is generally recognized that they should be familiar with all of the regulations which affect safety in the customer's use of the fuel. This is the only basis on which the driver can recognize improper conditions which may exist when he begins service at a former competitive account, or may be able to guard against hazards resulting from buildings, incinerators, or other additions or changes made at premises where he has been rendering regular service.

These problems, and any others of similar nature arising in your company's experience, should be discussed in connection with the safety meeting program that will be published in the May issue of "Butane-Propane News". Answers to these problems will be published in the May issue for comparison with your own solutions.

Problem 1.

Suppose a new customer should ask you to install a dual cylinder system in a level 11 foot space between a basement ventilator and the kitchen window, the sill of which will be level with the cylinder shoulders. The ventilator window could be closed while changing cylinders. This is the greatest distance between windows and/or ventilators on that side of the house, and there are no other locations next to the house that can be reached directly from the walk. Should you make the installation as requested? If not, where might an acceptable location be found?

Problem 2.

You are placing a tank for domestic service at a farm where you hope in the future to supply fuel for two tractors and a truck. The customer would like to have the tank placed just inside the yard fence, where it will be clear of passing traffic in the adjacent driveway, but where the vehicles, if converted, can be fueled through the fence. The fence is located 35 feet from the house. There is a pasture on the other side of the driveway. Where should the tank be located, and what protection should it be given?

Problem 3.

A customer's house is located on the brow of a rocky slope 25 feet above the level of the driveway, and 60 feet back from the property line. You are to install a 500 gal. WC tank. There is a suitable level spot behind the house, accessible by means of a steep paved walk which included two short flights of stairs. There is also a spot at the foot of the hill where the tank could be located 3 feet inside the driveway fence. The piping between this location and the house could not be buried on account of rocks. Considering all of the above factors, where would you locate the tank? If at the lower location, how would you protect the piping from physical damage, and how would you dispose of liquid fuel that might condense in the line? Would it be satisfactory to supply a mixture of propane and butane to this customer?

Problem 4.

If you were installing cylinders instead of a tank at the above property, and found that there was a location at the side of the house which met all requirements of Pamphlet 58, but that there was also a slightly sloping rock ledge at the foot of the first flight of stairs, on which the customer would be willing to have the cylinders placed, which would you recommend? If at the lower level, would you run piping or copper tubing? Describe the foundation that you would use.

Problem 5.

A customer, formerly served by one of your competitors, wishes to change his source of supply, and offers to buy from your company. The sales manager finds that the customer owns his supply tank, is located on one of your regular routes, and his credit record is satisfactory. Upon arriving to make your first delivery to this customer, you find that the foundations of the tank consist of four cement building blocks laid on soft ground, and that a back yard incinerator has been installed within 25 feet of the tank. Since no accidents have resulted from these conditions in the past, would you make the delivery? If not, what would you do?

Problem 6.

A suburban home which you are to equip with a bulk system is located across a brook from the street. The only practical location for a tank, which must be of the underground type, is just inside the front fence. The piping must cross the brook, which may some day reach flood stage. The walk from the street to the house crosses the brook over a cement bridge at the far side of the yard from the direct route between the tank and the house. The piping could be detoured across the bridge, or it could be buried beneath the bed of the creek. If at the bridge, it would be exposed to floods unless it is humped up from the buried level to the floor of the bridge. If buried under the stream, there would be a dip of several feet to bring it down to a safe level. Which method would you choose? Would you avoid trouble from condensate in the pipe?

The BEST is now

BETTER!



RegO's New No. 2092 Series Rotogages* Offer Improved Performance!

1" tank connection...for stationary containers
over 60" diameter...for mobile containers 24"
or more in diameter.

This new series of Rotogages is another example of RegO's never-ending program of development and improvement. As with all RegO products these new gauges are safe, dependable and accurate. You will get improved performance from the improved design of RegO No. 2092 Series Rotogage — here's why:

- Packed-type seal provides for take-up of normal wear of packing and permits repacking in the field without emptying container.
- A secondary seal prevents escape of liquid or gas while repacking.
- Possible misalignment or binding of Rotogage stem due to strain imposed by weight of long dip tube is eliminated. Packing is located midpoint of body to minimize effect of "rocking" of stem as gauge is rotated. Maximum support for rotating stem is provided by extra long body.

REGO FIXED TUBE LIQUID LEVEL GAUGES

RegO No. 2072 Series Rotogages have essentially all the same features found in the large No. 2092 series described above.

They have a $\frac{3}{4}$ " tank connection and are designed for stationary containers up to 60" diameter . . . mobile containers up to 24" diameter.



REGO No. 2072
SERIES ROTOGAGES

OTHER TYPES OF REGO LIQUID LEVEL GAUGES

REGO SLIP TUBE GAUGES

RegO Slip Tube Gauges are simple in design, rugged in construction and positive in operation. They are designed for

- Aboveground or underground systems
- Cylindrical or spherical containers
- Top mounting

Available in three types:

No. 2148R Slip Tube Gauge — for accurate gauging of liquid fuel content.

No. 2148RP Slip Tube and Fixed Tube Gauge — provides in a single assembly a means for determining the liquid level and a quick, simple way of determining the maximum permitted filling level (by raising the slip tube to the "stop" position).

Duo-Gage† Slip Tube Installations — designed for use on large bulk containers where a single, long slip tube would be awkward to handle. A Duo-Gage installation consists of two slip tube gauges — one gauge is used to measure the liquid level in the lower half of the container, the second gauge is used to measure the liquid level in the upper half of the container.

REGO
No.
2148R

REGO
No.
2148RP

REGO FIXED TUBE LIQUID LEVEL GAUGES

RegO Fixed Tube Liquid Level Gauges provide a simple and accurate means for determining when a container has been filled to the maximum permitted level.

Available with or without "Stop Filling" instruction plate. Two types, either of which can be top, side or end mounted:

- No. 3162 — designed for stationary containers not subjected to vibration.
- No. 3163 — designed for containers mounted on trucks, tractors and similar applications where vibration is encountered.

REGO
No. 3162

†Trademark

RegO is the registered trade mark of the Bastian-Blessing Co.



REGO

LP GAS EQUIPMENT

Stocked by These Distributors
GAS EQUIPMENT CO.
 Dallas, Texas
GAS EQUIPMENT SUPPLY CO.
 Atlanta, Georgia
GAS EQUIPMENT CO.
 of DENVER — Denver, Colo.
TILDEN ENGINEERING & EQUIPMENT CO.
 Fresno, Calif.
A. C. FINK, S. A., Mexico, D. F.
EMPIRE BRASS MFG. CO., LTD.
 London, Canada

The BASTIAN-BLESSING Company

4201 W. Peterson Ave., Chicago 30, Illinois

PIONEER AND LEADER IN THE DESIGN AND
 MANUFACTURE OF PRECISION EQUIPMENT
 FOR USING AND CONTROLLING LP-GASES

readily accessible for examination, reading and replacement.

b. The gas meter should not be installed in a small, unventilated or confined space.

c. A gas meter should not be placed where it will be subjected to damage, such as in driveways, public passages, halls, coal bins, etc., or where it will be subjected to excessive corrosion.

d. Gas meters should be located at a safe distance from equipment where there is an unguarded flame, or the possibility of electric sparks. It is desirable to avoid extreme temperatures and sudden extreme changes in temperature.

e. All piping from the point where the service enters the building to the meter should be exposed and accessible.

Gas Meter Supports

Gas meters should be adequately supported and connected to the piping so as not to exert undue strain on the connection.

Capacity of Meter

The demand of common domestic appliances may be obtained from the nameplate on the appliance or from the manufacturer, and it is customary to allow a reasonable diversity factor to arrive at the simultaneous demand, or meter capacity required. In practice, it is customary to anticipate not more than 0.5 inch water column drop in pressure through the meter.

The use of under-capacity meters should be avoided, as the shortage of gas when all appliances are operating sometimes leads to pilot failures, as well as misadjustment of appliances. Customer dissatisfaction is sure to result.

Liquefied petroleum gas is the safest fuel in the world, if it is kept under control at every stage of its journey from the production point to the final use in the customers' appliances. It is the obligation of management to see that all employees engaged in customer installations know all of the safety regulations and the recommended good practices, and then to exercise the necessary supervision to insure compliance. It is the personal responsibility of every employee making customer installations to do everything necessary to make each system safe.

We can not always prevent custo-

mers from getting into trouble due to their own blunders, just as careless customers are still being electrocuted in bathtubs in spite of all the work that the electric companies have done for the past half century. But each of us can go to bed every night with the assurance that no customer is going to incur any loss or accident due to negligent or faulty installation of the systems or appliances on which we work. The safe way is the only way to make any fuel installation.

Facts on Fuels Are Free From U. S. Bureau of Mines

Valuable statistics revealing the consumption trends of major fuels used for residential and commercial heating are included in a report prepared by A. T. Coumbe and I. F. Avery and released recently by the U. S. Bureau of Mines.

The study is titled "Fuels Consumed for Residential and Commercial Space Heating, 1935-1951," and covers L. P. gas, natural gas, coal, coke, fuel oil and other fuels. Free copies are available by writing Bureau of Mines, Publication Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

9th L. P. Gas Promotion Set For Kick-Off In April

The convenience and economy of "Instant Hot Water All the Time with Dependable L. P. Gas" is the main theme of the ninth round of promotion to be launched by the National Committee for LP-Gas Promo-

tion, starting in April. Scheduled to appear in 50 magazines of national, sectional and state circulation, the advertising campaign will carry the L. P. gas message to an estimated 103,500,000 people.

Secondary themes of the campaign will stress the advantages of L. P. gas for cooking, refrigeration, crop drying, incineration and tractor operation.

The program is co-sponsored by the Gas Appliance Manufacturers Association, Liquefied Petroleum Gas Association and Natural Gasoline Association of America. Lee Brand, Empire Stove Co., Belleville, Ill., heads the 40-man committee responsible for the promotion plans. A copy subcommittee, which approves the advertising, is headed by E. Carl Sorby, vice president, Geo. D. Roper Corp., Rockford, Ill.

Two 18,000-Gallon Tanks For Northwest Atomic City

At the request of Federal housing authority officials, two 18,000-gallon propane storage tanks are being erected at opposite ends of the "atomic city" of Richland, Wash., site of the Atomic Energy Commission's Hanford Engineer Works, by Bauer Construction Co.

Federal officials desire home owners and residents of the housing and apartment projects to use propane for domestic uses, because the supply of electric power is inadequate to meet the needs of the area. After the expected installation of natural gas, the LPG plants will be maintained on a standby basis in case of breakdowns.



Utility Distributors, Inc., Portland, Me., recently held an appliance session during a monthly sales meeting. From left to right: "Stu" Carrington, U.D.I. promotion manager; George Kelley, vice president in charge of sales for U.D.I.; Larry Ash and Larry Jadogo, Coleman Co.; Otis Gray, U.D.I. northern Maine district manager; and Gil Eaton, U.D.I. district manager, northern New Hampshire and Vermont.

By Robert C. Lisk*

Assistant Sales Manager
Fisher Governor Co.
Marshalltown, Iowa

Regulator and Line Capacities

A LITTLE theory goes a long way. Most of us who earn our livings the hard way don't have much time to spend on research and formulae and such. If a thing works, the theory of why it does is strictly for the birds. About the only time we ever get interested is when something doesn't work and we can't fix it by the trial and error method or by pounding it gently with an axe-handle.

But sometimes it helps to know a little of the "why" of things. We can take a lot of things for granted particularly if experience has shown us they are true but we often can do a better job if a little "know-why" is thrown in with the "know-how."

For example, we know that when gas flows through pipe or tubing that it loses pressure as it flows along. The longer the tubing, the greater the pressure drop. If the tubing is long enough, you can finally just run almost completely out of pressure. Why is this? Where does the pressure go? For another example, we know that the larger the orifice we have in a regulator, the more gas it will flow. But we also know that there is a limit to the size of the orifice we can put in a given regulator. Why is this? What determines the capacity of a regulator?

Where the Pressure Goes When It Drops

There is a definite relation between the loss of pressure and the flow through pipe or tubing since, when there is no flow, the pressure is the same at the end of the tubing as it is at the beginning. It would appear that flow causes the pressure drop. And it does. If you take an ordinary L. P. gas installation and

shut off all the appliances, the pressure at the appliance will be the same as it is out at the regulator. Then when you turn on the appliances, the pressure there drops even though the pressure at the outlet of the regulator stays just the same. Naturally there must be a little pressure difference or the gas wouldn't move from the regulator to the appliance but it is painfully evident in many cases that there is a direct relation between flow and pressure drop. It must be that flow causes pressure drop.

Flow Creates Heat

When gas flows through tubing, it scrapes and bumps along the inside walls of the tubing and fights with itself when it comes to a corner. All this scraping and bumping and fighting causes heat. The source of this heat is the energy which is making the gas flow down the tubing. If you take this energy and change it over into heat you suffer a loss in pressure. The heat makes the pipe get warm and then the air or earth around the pipe carries away the heat and the pressure energy is lost. Thus, it can be said that the difference between the pressure at the regulator outlet and the pressure at the appliance inlet is turned into heat and is lost.

In only extreme cases can you put your hand on the pipe or tubing and feel the increase in temperature. But the loss of heat goes on nevertheless and along with it goes the pressure drop.

If we want to reduce the pressure drop we must first reduce the amount of scraping, bumping and fighting that takes place. There are four ways we can do this:

- (1) Decrease the flow of gas.
- (2) Use shorter tubing.
- (3) Avoid turns in the tubing run.
- (4) Use larger tubing.

It doesn't take an expert engineer to figure out that we can't decrease the flow of gas. We need so much gas for a given job. We don't set up the gas load to fit the tubing we have put in—we put in the tubing to fit the gas load.

The next thing we can do is use shorter tubing. This sometimes helps but usually certain factors dictate the minimum length of tubing to reach all of the appliances to be connected. These factors (such as making the tubing job look good or getting it out of the road) are more important than shortening the length.

The same applies to avoiding turns in tubing and piping runs. Only within certain limits can we get away from elbows, tees, valves and so forth. That leaves number (4) which is to use larger tubing. By all odds, tubing or pipe size is the most important factor in preventing pressure drop.

What Is Wrong With a Little Pressure Drop?

What if the pressure does drop from 11 in. water column down to 6 in. water column? What harm is that going to do? For one thing, L. P. gas appliances are all set up and designed to do their top job when the gas is brought to them is close

*A paper delivered at the L. P. Gas Service School, Rolla School of Mines and Metallurgy, Rolla, Mo., March 16-18, and sponsored by Missouri L. P. Gas Association.

to 11 in. water column. You can talk about "certified performance," heating speed, cooking speed, and efficiency all you want to but they all go out the window if you don't get the right pressure gas to the appliance. If the pressure is too high, flames lift off burners and pilot lights blow off and out. If the pressure is too low, the appliances lose efficiency and won't cook or heat water with the speed of which it is capable. With a rather simple piece of equipment it can be demonstrated that too much pressure drop in tubing can double the time it takes to bring water to a boil on a top burner. The shame of it is that when we don't let our marvelous cooking ranges and water heaters do the wonderful job they can do with the proper gas pressure, the ugly competition of electrical appliances can get a foot in the door and the dissatisfied housewife will listen to the siren song of the kilowatt cowboys. They would never get in if the housewife could get out of her L. P. gas appliances the fine performance the manufacturer put it.

Can't You Reset the Regulator to Take Care of Pressure Drop?

Have you ever seen anyone put in a job with the regulator set at 11 in. water column just like it comes from the factory and then find that there is so much pressure drop in the tubing that the pressure is too low in the house when the appliances are turned on? And then the serviceman goes out to the regulator and "screws down" on the regulator until the pressure is back up to 11 in. This is strictly no good. The reason for this is that when most of the appliances are turned off, the flow decreases to almost nothing and the pressure drop no longer occurs. The pressure at the appliances or pilot light left burning goes way up to 15 or 16 in. water column. You are just robbing Peter to pay Paul. So you can't reset the regulator to take care of pressure drop.

What Should You Do to Take Care of Pressure Drop?

The least expensive thing to do is to put the job in right the first time with plenty of tubing or pipe capacity. Look forward to the time when you can sell additional appliances such as driers, space heaters, water

Selection of Copper Tubing Type "K" For Low Pressure Service

Pressure-11" Water. Tubing Size is O D

Length of Tubing in Feet	LP Gas in Cubic Feet and BTU Per Hour							
	5 12,500	10 25,000	15 37,500	25 62,500	30 75,000	40 100,000	60 150,000	80 200,000
10.....	3/8"	3/8"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"
15.....	3/8"	3/8"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"
20.....	3/8"	3/8"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"
25.....	3/8"	3/8"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"
30.....	3/8"	3/8"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"
40.....	3/8"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"
50.....	3/8"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"
75.....	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"	1"
100.....	1/2"	1/2"	3/4"	3/4"	3/4"	1"	1"	1"
150.....	1/2"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"

Based on Pressure Drop of 1" W.C. for Length of Tubing Selected

TABLE 1.

heaters, etc. The cheapest way to avoid pressure drop then is to size your tubing correctly now.

It isn't a very complicated procedure, but you do need to have a few facts at your disposal and you need to have some information on how much gas each size of pipe or tubing will carry without causing an objectionable pressure drop.

Where Do These Facts Come From?

Part of them come from readily available handbooks or catalogs. For example, Fisher Governor Co. Catalog LP-5A includes a technical data section. Table 1 gives directly the size tubing which should be used for

various lengths from regulator to appliances and for various gas loads. Table 2 shows capacities for pipes of the usual sizes.

What Is the Maximum Allowable Pressure Drop?

If the total pressure drop from regulator to the most remote appliance never exceeded more than 1 in. water column, it would be a delightful situation and there would be no need for long tiresome articles like this. The first table is based on a maximum drop of 1 in., whereas the second one is based on only 1/2 in. Use the data in either one and your appliances will do their very best for your customer and for you.

Capacities in Propane, Cubic Feet per Hour for Pipes of Different Diameters and Lengths

To be used for figuring Low Pressure Piping-Based on 6 oz. per sq. in. press. Capacities are for Pressure Drop of 0.5" W. C.

Length of Pipe in Feet	Diameter of Pipe, Inches								
	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"	5"	8"
15.....	170	315	617	970	2,016	5,418	11,214	19,530	30,870
30.....	120	246	428	680	1,386	3,843	7,875	13,860	21,735
45.....	98	202	353	561	1,134	3,150	6,489	11,340	17,640
60.....	85	176	308	485	1,008	2,709	5,607	9,765	15,435
75.....	76	158	271	428	882	2,394	5,040	8,820	13,800
90.....	69	145	252	391	819	2,205	4,599	7,875	12,600
105.....	64	132	233	365	756	2,079	4,284	7,434	11,655
120.....	60	126	217	343	693	1,953	3,969	6,930	10,962
150.....	55	113	195	309	630	1,701	3,528	6,174	9,765
180.....	50	101	176	280	567	1,575	3,213	5,607	8,821
210.....	46	95	164	258	529	1,449	3,024	5,229	8,190
240.....	43	88	154	243	498	1,355	2,772	4,851	7,749
270.....	41	82	145	230	466	1,292	2,646	4,599	7,245
300.....	38	79	139	217	447	1,229	2,520	4,410	6,930
450.....	32	63	113	176	359	1,008	2,016	3,528	5,607
600.....	27	55	95	151	308	851	1,764	3,024	4,788

TABLE 2.

For Higher Pressures and Special Conditions

Not all L. P. gas jobs fall into the standard pattern. Now and then you need to deal with pressures other than 11 in. water column. When you do, just use the chart which follows complete with directions. Very often when dealing with higher pressures, you can tolerate fairly high pressure drops and thus hold the size of the piping down to a minimum. This is true when you have another regulator at the outlet of the piping to do the final stage of pressure reduction. An example of this is in a two stage L. P. gas system where one regulator is located at the tank and reduces down to 10 or 15 pounds pressure. The other regulator is located at the house to reduce on down to 11 in. water column. It really doesn't do much harm at all to have two or three pounds pressure drop between the two regulators since the second stage will do a swell job of maintaining 11 in. pressure at its outlet with only a few pounds variation at its inlet. Chart Fig. 1 gives details.

There is still another chart (Chart Fig. 2) which may prove helpful once in a while. It gives the pressure drop which occurs with various flows and various sizes of tubing. It comes complete with directions and will permit you to find out how much pressure drop you actually will get in case it is other than the 1/2 in. or 1 in. value given in the tables.

Now That We Are Experts

Now that we are experts on pressure drop and what causes it, we naturally itch to put the information to some practical use. In order to do this, we need to know about how much gas each appliance we propose to hook up now or in the future will require. Sometimes you can get this right off the appliance itself. That is the best way since appliances do vary as to the amount of gas they consume. If you can't get the information there, though, Table 3 will be useful!

First Catch the Hare

The next thing to do is to go out and put the bite onto a prospect and turn him over into that more desirable form of life, the customer. On the first go-round maybe you can just sell him a range and a small bathroom heater. You know very

well that you will sell him a water heater later and a refrigerator and a couple more double radiant room heaters. You add the load up about this way:

Range	55,000 Btu
Heater	4,000 Btu
Water Heater	35,000 Btu
Heaters (future)	8,000 Btu
Refrigerator	4,000 Btu

Total106,000 Btu

From your fund of knowledge you know that there are about 2500 Btu per cubic foot of L. P. gas (propane) and that 106,000 Btu is the equivalent of about 42 cubic feet per hour.

We should be ready to go to the tables and get the proper tubing or pipe size. But we aren't. We need to know how far it is from the cylinders or tank to the most remote ap-

pliance. If you were a good salesman when you signed up the customer you would have worked out the location of the gas storage to the complete satisfaction of both the customer and NBFU Pamphlet No. 58. Don't ever forget the good book. If you do forget you may be on the receiving end of a whopping lawsuit when gas isn't involved at all and the industry will get another undeserved black eye. If you don't have a copy of Pamphlet 58, by all means get a copy and do what it says. If you happen to have special state laws they will probably follow Pamphlet 58 to the letter and you will thereby be safe, smart, and legal all at the same time.

If you and your salesman made a little sketch to show where the storage goes and where the appliances

Chart for Determining Proper Size of Copper Tubing or Pipe and Showing Pressure Drop With Flow of Propane Gas

*When used for butane multiply flow rate by 1.15 and use this equivalent propane flow rate to secure pressure drop.

For Flowing Pressures of 0 to 30 Pounds

In laying out an L.P. Gas system, the tubing or piping should be large enough to handle the flow of gas without excessive pressure drops. The chart shown was developed for determining the pressure drop for the flow of Propane gas through various sized tubing and pipe under all normal operating conditions. The chart Fig. 1 is for intermediate pressure applications where the distribution line is going to carry pressures from 0 to 30 lbs., such as between first and second stage regulators.

Example for working Chart No. 1: Assume that 140 cubic feet per hour of Propane gas is flowing through a sixty foot run of 1/2" O.D. Type L tubing, at a static pressure of 15 psi gauge. To find the pressure drop, locate 140 CFH on the left hand bottom part of Fig. 1 (note dotted line follows this example) and follow the line vertically until it meets the diagonal line marked "1/2" O. D. Type L copper tubing." From this point, move right horizontally to the vertical zero line of the static flow pressure scale. Then move downward, parallel to the diagonal lines, to the 15 psi vertical line. Draw a line horizontally to the right edge of the chart and read .66 psi pressure drop per hundred feet of pipe on the vertical scale. For sixty feet of pipe, the pressure drop would be 60% of the .66 pounds per square inch, or .396 lbs. pressure drop for the sixty feet of pipe or tubing.

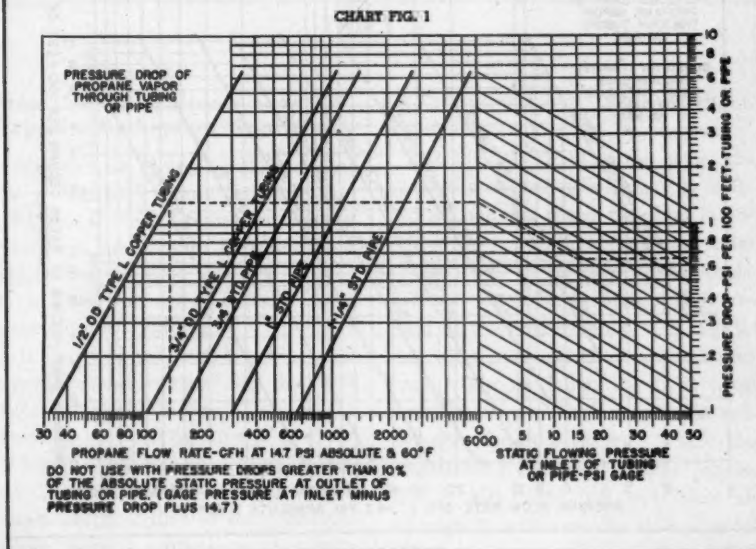


FIGURE 1.

Chart for Determining Proper Size of Copper Tubing or Pipe and Showing Pressure Drop With Flow of Propane Gas

*When used for butane multiply flow rate by 1.15 and use this equivalent propane flow rate to secure pressure drop.

For Flowing Pressures of 11" Water Column:

In the design and layout of a low pressure LP Gas distribution or piping system, the copper tubing or pipe size is very important, as it is necessary that the piping be large enough to handle the flow of gas without excessive pressure drops. The chart shown was developed for determining the pressure drop for nearly all standard conditions encountered in the field for house piping installations.

Fig. 2 chart shown is based on the flowing gas pressure in the piping at 11" W.C. and, therefore, is for low pressure service piping between the regulator and the gas appliances.

Example, Fig. 2: For low pressure service, the regulator is normally set at 11" W.C. Therefore, this chart is based on only one pressure condition. In the example as shown by the dotted line in the chart, locate the flow in cubic feet per hour on the bottom left hand half of the chart. The example is based on a flow of 24 cubic feet per hour. Follow the dotted line vertically until you contact the diagonal tubing or piping lines, which, in the example, contact the 1/2" O.D. tube line. From that point move horizontally to the right side of the chart and read the pressure drop on the right hand scale, which, in this example, shows a pressure drop of 1.6" W.C. per 100 feet of 1/2" O.D. tubing. If the installation under consideration were to use only 40 feet of tubing take 40% of 1.6, which equals .64" W.C. drop for forty feet of tubing.

CHART FIG. 2

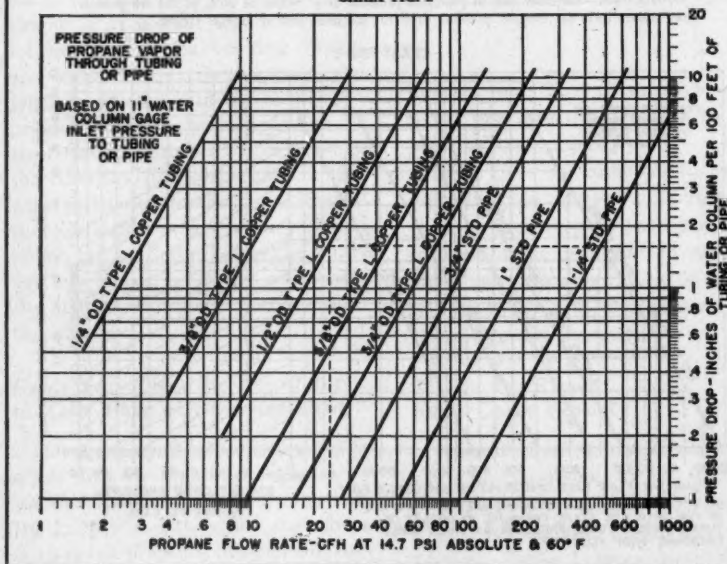


FIGURE 2.

are to be located, the sketch will show how far it is from the cylinder or tank to the appliance the greatest distance away. This is the distance to use in figuring your pressure drop.

Let us say that the distance is about 50 feet. If you aren't real sure, use 60 feet. Now we are ready to go for sure. The load is 106,000 Btu or 42 cubic feet per hour and the length of tubing or pipe is 60 feet. Turn back to the first table and go down the "length" column to the 75 foot figure since there is no 60 foot figure. (In this work, always work on the side which will give the least pressure drop when you choose figures.) Now go sideways in the table from the 75 foot length to the column headed 40 and 100,000. We have slightly more flow than this but we used 75 rather than 60 feet so we are certainly safe. Here we find that 3/4-

in. OD. Type K copper tubing should be employed. Actually, we would probably prefer to use pipe for this job and if you go into the second table, you will find that 1-in. pipe will carry 176 cubic feet per hour through 60 feet with only 1/2-in. pressure drop.

Now that is probably more of a distance than you will ordinarily run into but you will be surprised if you will conscientiously check distances. It is the failure to check distances and properly estimate present and future loads that robs the appliances of the ability to perform and brings service calls to relight pilot lights.

By the Way, What Is a Btu?

How often do we use words or expressions in our daily work without ever stopping to think what they mean? Btu is one of these. We say that our gas has 2500 Btu and more to the cubic foot. What does this mean? Well, a Btu is the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit. Thus, a cubic foot of L. P. gas should be able to raise the temperature of 2500 pounds of water one degree. Or to raise the temperature of 25 pounds 100 degrees. The closer you come to doing this with an appliance, the more efficient it is.

All of which brings up an interesting little point about cooking. It

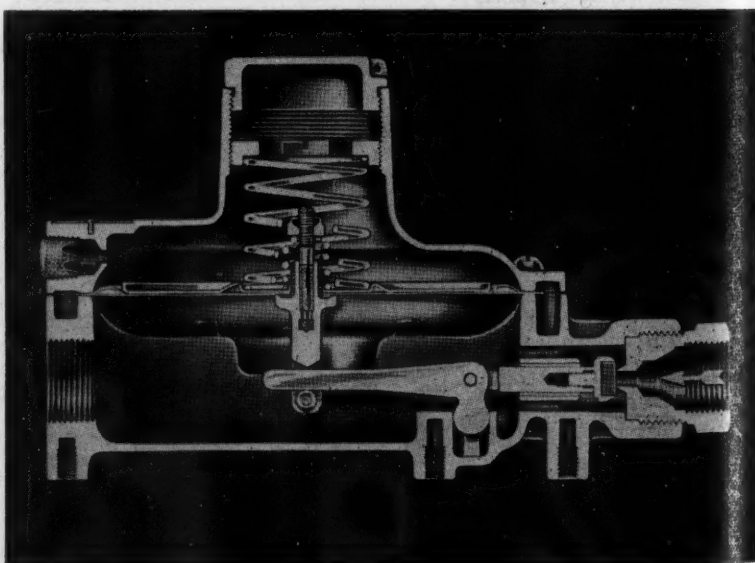


FIGURE 3.

actually doesn't take many Btu to raise the temperature of water up to boiling. This is as high as you can get the temperature of the water. If the housewife keeps pouring the heat to the pan after the water comes to a boil, she is just operating a steam boiler without cooking one bit faster. It takes lots and lots of Btu's to turn water into steam. So when the water in the pan comes to a boil, turn the gas flame down to a simmer and save money. Teach this to your customer and you may overcome a high bill complaint.

Picking Out the Correct Size Regulator

If you didn't know anything else about regulators, you would keep out of trouble by remembering that you can easily use one too small but you can't use one too big. At the same time it is not wise from a cost standpoint to use the maximum size regulator on every job.

In general, the size of the orifice in a regulator determines its capacity. Also in general, the size of the regulator diaphragm determines the largest orifice which may be used. This is because "unbalance" plays such an important part in the design of a regulator. Take a look at the cutaway view of a regulator in Fig. 3.

Notice that the high pressure gas coming into the regulator is trying to push the disc away from the orifice. There is only low pressure gas on the other side of the disc. This difference in pressures acting on the disc and its effect on regulator operation is called "unbalance." The greater the unbalance, the larger must be the diaphragm in order to overcome the forces involved and yet maintain good steady outlet pressure.

Gas Required for Average Appliance, Boilers and Internal Combustion Engines

For Accuracy Manufacturers B T U Rating Should Be Used

Appliance or Service	Gas BTU per hour
Domestic Gas Range (4-Burner Top).....	55,000
Domestic Gas Range (6-Burner Top).....	105,000
Domestic Water Heater, Circulating Type.....	35,000
Domestic Hot Plate, Per Burner.....	9,000-12,000
Domestic Room Heater, Single Radiant.....	2,000
Domestic Room Heater, Double Radiant.....	4,000
Water Heater, Storage Type, Slow Recovery.....	2,500-10,000
Water Heater, Storage Type, Fast Recovery.....	15,000-75,000
Conversion Burner.....	80,000-500,000
Unit Heaters.....	25,000-750,000
Refrigerator.....	2,000-4,000
Floor Furnace.....	10,000-85,000
Warm Air Furnace.....	40,000-300,000
Gas Fired Steam Boilers, Per B.H.P.....	60,000-75,000
Internal Combustion Engines, per B.H.P.....	9,000-10,000

TABLE 3.

How the Manufacturer Gets His Capacity Ratings on Regulators

Take a look at any catalog put out by a regulator manufacturer. You will note that each regulator is given a certain "maximum capacity" rating in Btu or cubic feet per hour or both. Then you will also find a curve sheet like that in Fig. 4.

If you will take the trouble to go over these curves carefully, they will tell you many things. Two of the most interesting things are the "lockup" and the maximum capacity. Lockup is the pressure which exists at the outlet of the regulator when there is no flow or very little flow. If lockup is poor, pilot lights will go out. If the lockup is really bad, the regulator relief valve will open and spill valuable gas out the regulator vent. These things mean expensive service calls. So lockup is important. For example, look at the 150 pound line on the curve sheet. When there is no flow, the pressure

is 12½ in. water column, only slightly above the ideal 11 in. pressure.

At the other end of the scale, the outlet pressure falls down to 9 in. water column when the flow is 350 cubic feet per hour and the inlet pressure is way down to 10 pounds. This is the difficult time, this is the test of the performance of a regulator. The question is: how much gas can it supply when the inlet pressure is low and still maintain a reasonable outlet pressure? Thus, the "maximum capacity" of this regulator is 350 cubic feet per hour although it will actually flow a good deal more.

Very few jobs ever call on a regulator to deliver its full capacity. At the same time it is well to be generous in sizing so that too much drop in regulator outlet pressure does not add to too much drop in pressure through the tubing to give you poor appliance operation. While the capacity is there for you to use, it is always well to size the regulator so that you have a comfortable margin for good operation.

Gale Gas Co. Becomes Essotane Distributor

The Gale Gas Co. has recently been established at Keyport, N. J., by Harry, Manuel and Milton Gale to engage in both wholesale and retail distribution of "Essotane" L. P. gas.

The new company will be associated with the Keyport Hardware Co.

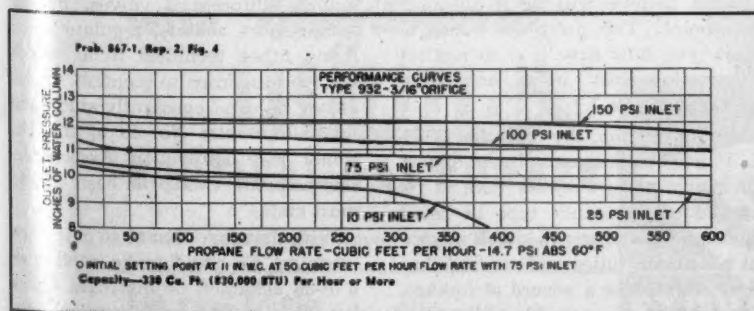


FIGURE 4.

Do You Know Your Operating Costs?

By **M. L. Trotter**
President
Carolina Butane Gas Co., Inc.
Columbia, South Carolina

IN an advancing market *operating cost* is an item that most businessmen are prone to neglect. For several years now, as you know, we have been living in the most rapid advancing market in business his-

tory. This business spiral is making the business statisticians extend the heights of their charts to the ceiling, and each week these figures continue to climb. However, if you read any of the business periodicals, you are aware of the fact that practically every concern is doing a greater volume of business, but is making a much smaller net profit than it enjoyed during 1950. And in every case the explanation to the stockholder is "higher operating cost."

I believe that the same thing is true in the business of the average L.P. gas marketer. It certainly is true in the case of our company's operations, and when it will stop I cannot predict. I will venture a prediction, however, and that is—the business tide will eventually turn—and when it turns unless you are in a position to operate very efficiently, I'm afraid that it will mean that you are going to experience some financial difficulties.

Before getting into the subject of operating costs, I believe it would be very wise for us to analyze the duties of a manager of an L. P. gas business. I shall attempt to outline them from what I believe will be a different viewpoint. The purpose being to show you how easy it is to neglect "Operating Cost" in an advancing market. (Form 1.)

In my opinion, the manager of an L. P. gas business must be an expert on many more subjects than is required of any other type of retail business manager. A quick glance at his list of duties and we find that first he must be a wizard at finance. He is if he can pay his obligations when due after re-investing the nec-



M. L. Trotter

Many important papers are delivered at LPG meetings which should be made available to the industry at large but which often go unpublished for want of sufficient space in the current issue

of this magazine.

Here is a valuable discussion of "Operating Costs"—a vital subject—delivered by Mel Trotter at a management short course last year which comes under that classification, and we are glad to present it to our readers this month.—Editor.

essary capital for normal expansion. The product and service is one which requires unusual ability in the art of specialty selling, and demands that the manager be an expert at sales training, sales promotion, and advertising.

He must possess a general knowledge of law, insurance and accounting, and be constantly alert on the matters of legislation, safety, customer relations and employee relations. Then he must constantly watch his accounts receivable, inventory, customer service and gas distribution. In addition, it is necessary to be an expeditor, politician, and at the same time, be a magician at working out his gas ratios. No, that is not all; we have just mentioned a few general requirements. He must also be an expert at designing both domestic and commercial kitchens, a hot water engineer, heating engineer, carburetor technician, industrial engineer, agricultural genius, and a meteorologist.

Let's not overlook the fact that he handles a hazardous commodity which requires a thorough knowledge of relief valves, excess flow valves, differential valves, pumps, compressors, meters, regulators and many other technical items which are too numerous to mention. In addition, he must constantly study and teach Pamphlet No. 58 of the National Fire Protection Association, this pamphlet being the basic law in most states.

With that check list to go over each morning, he could make a pilot on a B-36 ashamed of his flight check list. Then to have to be worried with a little item like "Operating Cost"!

LPG MANAGER'S DUTIES

Form #1

Finance
Sales and Collections
Advertising
Law
Accounting
(a) Payables
(b) Receivables
(c) Inventory
(d) Capital Equipment
Insurance
Political Science
Mechanical Engineer
Heating Engineer
Water Heating Engineer
Combustion Engineer (farm and industrial gas applications)
Carburetor Technician
Meteorologist
Kitchen Designer
(a) Domestic
(b) Commercial
Safety Engineer
(a) Valves
(b) Pumps and Compressors
(c) Meters

Should be expert at the following:

Public Relations
Customer Relations
Employee Relations
Instructor (Sales, Service and Pamphlet #58)
Magician (Gas Ratio)

Operating Cost Control



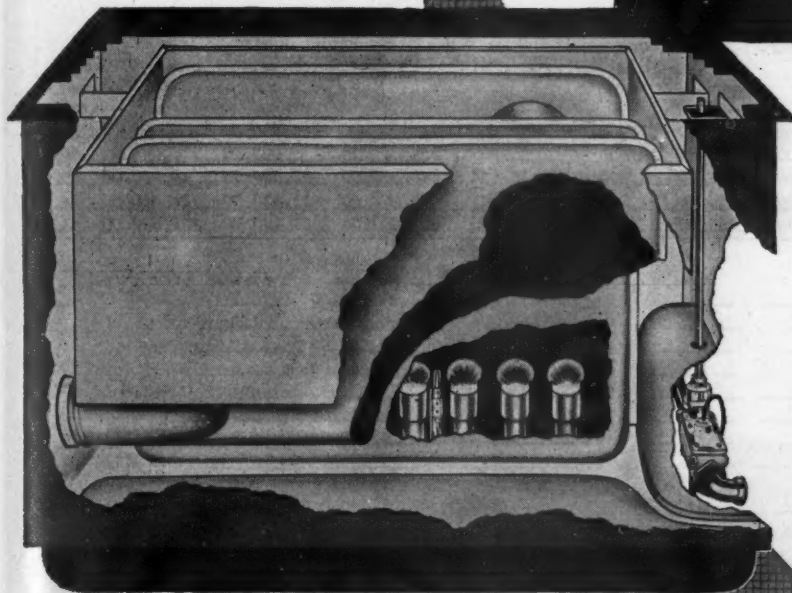
**SILENT AS A KITTEN
WITH AN EXTRA SET OF
FOOT PADS**

No Boom, No Bang, No Loud Ticks

Patented Vertical "Thriftmatic" Burner produces *more heat for less money!* Heat Exchangers cut down boom and bang ... *silent as a kitten*. Needs no servicing. Burns natural, mixed and L-P gases.

Every time you sell an *Empire*, you sell another customer on your store for life...because Empire means matchless value! Mighty smart way to build up business.

Make YOUR
Customer
King with a
great new
**EMPIRE
GAS FLOOR
FURNACE**



with *"Thriftmatic"*

VERTICAL GAS BURNER

World's largest manufacturer of gas floor furnaces

See your Empire
representative or write direct to Empire



EMPIRE

STOVE COMPANY
BELLEVILLE, ILLINOIS

Why, it's no wonder that the subject receives so little attention in an advancing market. "Why bother with that one? I'm doing all the business I can do." That's what I'm afraid the average L. P. gas manager is thinking. And, if you are of that opinion—watch out—pretty soon you are going to wake up to the fact that you have more department heads who have hired more assistants, helpers and clerks to give you more excuses why something can't be done than a Washington bureaucrat.

Before it is possible to discuss "Operating Cost" it is necessary for us to be able to see our cost of operations and, therefore, we must through necessity have an Operating Statement. Form 2, which I would like for you to observe, is our monthly

operating statement. This statement covers the detail operations for the month and for the year to date. In the upper section is a breakdown of sales, cost of sales, gross profit, and percentage of gross profit by item, for the month's business and for the year to date. In our operation, we break down all sales into four classifications, namely, gas (cylinder), gas (bulk), system and appliances, and installation. The first three I believe are self-explanatory; the fourth item, which is installation, may need a little explanation. Under this heading we include all service or repair sales as well as all installation sales. The figure under "Cost of Sales" in this item includes pipe, fittings, repair parts, controls, etc.

The center section of this report

covers all expenses pertaining to the operation and is broken down into the most common expense items. The expense for the month of each item is listed, then the "Percentage to Sales" is figured on each item in order to determine exactly how much of each income dollar we are spending on each expense item. The same thing then is entered on this report for "The Year to Date".

In the lower section of the operating statement, you will find the gross profit, less expenses, which gives the net profit, and the percentage of net profits to sales both for the month and the year to date.

How anyone can operate a business without an operating statement monthly is more than I can understand, yet I have had very few L. P.

COLUMBIA CAROLINA BUTANE GAS CO., Inc.

FORM #2

COLUMBIA OPERATING STATEMENT					Month <u>JUNE</u> 19 <u>52</u>		Year To Date			
	SALES	COST OF SALES	GROSS PROFIT	% GROSS PROFIT TO SALES	SALES	COST OF SALES YEAR TO DATE	GROSS PROFIT YEAR TO DATE	% GROSS PROFIT YEAR TO DATE		
Gas (cylinders) 1000 Cyl.	10,000.00	2,300.00	7,700.00	77	147,000.00	34,600.00	112,400.00	76.5		
Gas (bulk) (10 CARS)	20,000.00	10,000.00	10,000.00	50	272,000.00	136,000.00	136,000.00	50.0		
Systems and Appliances	10,000.00	6,500.00	3,500.00	35	142,000.00	92,300.00	49,700.00	35.0		
Installation *COST P.P. & PARTS (ONLY)	2,500.00	* 850.00	1,700.00	68	36,000.00	11,520.00	24,480.00	68.0		
TOTALS	42,500.00	19,650.00	22,850.00	53.8	597,000.00	274,420.00	322,580.00	54.0		
EXPENSES										
	Month	% To Sales	Year To Date	% To Sales						
Salaries AND COMMISSIONS	7225.00	17.0	92,750.00	16.7						
Advertising	425.00	1.0	6,500.00	1.1						
Bank Charges			85.00							
Bulk Plant Expense	212.50	.50	2,950.00	0.5						
Credit Reports	53.13	.125	700.00	0.1						
Extra Labor			600.00	0.1						
Lights, Water and Heat	106.25	.25	1,400.00	0.2						
Gas Expense										
Installation Expense MISC.	425.00	1.0	5,300.00	0.9						
Sales Expense CAR ALLOWANCE, - GAS - OIL	212.50	.50	2,850.00	0.5						
Office Expense SUPPLIES, STATIONERY, ETC.	212.50	.50	2,850.00	0.5						
Office Repairs	53.12	.125	850.00	0.1						
Postage	53.13	.125	750.00	0.1						
Rent	106.25	.25	1,520.00	0.3						
Travel	53.12	.125	700.00	0.1						
Safety Expense	53.13	.125	750.00	0.1						
Shop Expense AUTO SHOP	106.25	.25	1,640.00	0.3						
Telephone and Telegraph	106.25	.25	1,520.00	0.3						
Tool Expense	53.12	.125	600.00	0.1						
Gas, Oil, Grease and Wash	850.00	2.0	10,650.00	1.8						
Parts and Repairs	425.00	1.0	5,975.00	1.0						
Administrative Expense & GENERAL OFFICE EXP.	5100.00	12.0	71,640.00	12.0						
Tax Reserve	1737.50	4.25	25,621.00	4.3						
DISCOUNTS	850.00	2.0	11,940.00	2.0						
DEPR.	1700.00	4.0	23,840.00	4.0						
TOTAL	20168.75	47.50	280,331.00	47.0						
Branch Total										
	Gross Profit	Expenses	Net Profit	% Net Profit To Sales	Gross Profit	Expenses	Net Profit	% Net Profit To Sales		
	22,850.00	20,168.75	2,681.25	6.3	322,580.00	280,331.00	42,249.00	7.1		

"SALES CLINCHERS" FOR GAS RANGE SALESMEN

No. 2 of a series

To sell her the *GAS* range, show her the "*COFFEE-WARMER*" feature of the **ALLTROL** *Center Simmer*

Wonderful "keep warm" temperature of 130° to 175°—just right for keeping coffee—or food—at its flavorful best . . . deliciously hot, ready to serve! It's exclusive with ranges* featuring the Alltrol Center Simmer surface burner. And it's another reason why your prospects will become your customers.

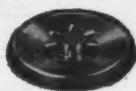
ONLY ALLTROL BURNERS HAVE A COMPLETE HEAT CYCLE



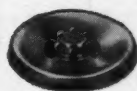
Full flame Starting Burner for quick boil or fast frying.



A full range of intermediate heats when wide spread of heat is needed.



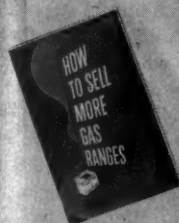
Click... here's efficient "Center Simmer" that maintains boiling in any covered vessel.



Click... a gentle "Keep Warm" heat... without further cooking.

*Write for names of ranges featuring ALLTROL Center Simmer.

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"ALLTROL CENTER SIMMER" MAKES GAS THE WINNER!



gas men, with whom I have talked, tell me that they have a monthly operating statement. To us, at Carolina Butane, this is the most important item of the month, and it is from this report that all plans are formulated for future operations. Here in one report we have a complete picture of our operations, and it is possible for us to study all phases of our business from this report and make improvements.

Now, let us take a little time and analyze this operating report. The first thing we will cover will naturally be our sales, cost of sales and gross profits. Because there can certainly be no profit unless we first make the sale. Then, after the sale is made, we need to know the gross profit derived from the sale as well as the percentage of profit on the sale. Next, we must know the expense necessary to complete the sale, and then what is left is the reason we go to the office each day.

Analyzing Operating Costs

Now we are ready for some real fun. . . . How can we improve this monthly operating statement? . . . Well! It's not so complicated, you say . . . we just sell more goods for a higher price, buy the goods cheaper, and spend less to get them delivered and installed. The results will just have to be more and more net profit. Yes, you are exactly right—with that little simple formula everyone should be able to get rich, but the ability to accomplish that task is the governing factor which determines whether or not you can survive in a declining market.

Since my topic is "Operating Cost," I will have to assume that you have the ability to increase your sales without any difficulty, sell these goods for a higher price, purchase them cheaper, which will automatically give you a much greater gross profit than your competitor. Now, it becomes my job to try and help you cut your cost without disturbing your organization in order that you can have more profits to divide with the tax collector.

Looking at the operating statement, it is obvious that the greatest expense items are salaries and administrative cost—so anyone would just naturally start cutting salaries to achieve this task. But, wait a min-

GAS TRUCK STATISTICS FOR					Form #3	
FEBRUARY 1952						
Truck No.	Inv. Numbers Inclusive	Total Gal. Del. Month	Total No. Dels.	Total Mi. Driven	Av. Gals. Del. Per Day	Av. Del. Per Day
C-3	C-2290-2444	27,641	154	1435	1202	6.7
C-4	T-1619-1891	41,013	272	1541	1783	11.8
C-2	L-2617-2943	48,342	326	1405	2102	14
N-1	J-608-752	20,086	144	1730	874	6.3
Total Four Trucks		137,082	896	6119	5961	39
Average Each Truck		34,270	224	1529	1490	9.7
Twenty Three Working Days						
Eight (8) hours per day						
		Av. Gal. Per day	Av. Mi. Dvn. per day	Av. Gals. Dld. per Mi	Av. No. Mi. Btn. Dels.	Av. Gal. Dld. per Hour (8)
		179	63	19.3	9.3	150
		151	67	27	5.6	222
		149	61	34	4.3	263
		139	76	11.5	12.1	109
Total Four Trucks		518	267	22.5	7.0	744
Average Each Truck		152	67	22.5	7.0	186
		Sales Cash	Sales Charge	Total Sales		
		1,030.34	\$ 4,689.22	\$ 5,719.56		
		2,318.55	6,280.91	8,599.46		
		2,652.79	7,319.30	9,972.09		
		822.17	3,438.35	4,260.52		
Total Four Trucks		56,823.85	\$21,727.78	\$28,551.63		
Average Each Truck		1,705.96	5,432.44	7,137.91		
		Total Direct Exp.	Cost per mile	Cost per gal.		
		\$ 455.48	.317	.016		
		509.89	.331	.012		
		363.95	.259	.008		
		448.49	.258	.022		
Total Four Trucks		\$1777.81	.290	.013		
Average Each Truck		444.45	.290	.013		

ute. Cutting salaries is not as simple as that. When you start playing around with the payroll, you had better do that with care, or you may wake up to find that your sales and service organizations, which have taken you years to build, are gone, and with them go those sales and gross profits. So, I guess we better let that one alone for the time being and get into the other expenses and see what we can do.

Time will not permit us to discuss the details of each expense item listed, so we will take the auto and trucks expense item first and then we will go into salaries and other items. Now, I believe, the average L. P. gas marketer tries to render service to customers in a radius of from 20 to 50 miles from his plant and to do that it takes a good size fleet of trucks as well as employees. So let us analyze our business for a moment and see if we are not just in the "Glorified

Trucking Business" and if that is true, then let us start trying to set up a very efficient system of operating our trucks.

I will have to limit my suggestions on the subject of efficient distribution to the operator who utilizes the dual cylinder system of cylinder distribution, and who delivers gas in bulk to customers who own their own storage systems. Because that is the way we operate and the suggestions which I have to offer are based on methods we have worked out in cutting our distribution cost.

Suppose we discuss the cost of bulk gas distribution first. To reduce the cost per gallon on bulk deliveries it has been necessary for us to educate our customers to expect gas deliveries to be made in the same manner as their milk is delivered—that is, by regular, periodic deliveries. We operate on a route basis and work all customers on the route in a

Light the way to

EASIER SALES!

Watch your LP customers' eyes light up when they see the "magic oven-eye"! LP users are interested in anything that means easier, better baking. They know and trust the reliability and dependability of *Magic Chef*. Show them the "magic oven-eye"... watch sales come faster with *Magic Chef*, the range LP users everywhere prefer.



Exclusive
Magic Chef
GAS RANGE
"magic oven-eye"

Magic Chef features for cooking magic

• "MAGIC-RAY" SWING OUT BROILER • RED WHEEL OVEN HEAT REGULATOR • "MAGIC OVEN-EYE" • MAGIC CHEF UNI-BURNER • "MAGIC-AIRE" DEODORIZING LAMP • PLUS many other additional features.

Magic Chef, INC., ST. LOUIS, 10, MO.



You see the **LIGHT** when
the oven heat's **RIGHT!**

You take the guesswork out of oven pre-heating when you sell *Magic Chef*. Your customer just turns on the oven, sets the Red Wheel Regulator... and the "magic oven-eye" tells her when the oven's ready. She'll be cooking for exactly the right time at just the right temperature with *Magic Chef!*

more women cook on *Magic Chef* than on any other range

chronological order at regular intervals. The time between deliveries depends on the weather conditions and many other factors such as the size of the customer's storage system and his consumption. Certain customers are worked yearly, others semi-annually, monthly, semi-monthly, weekly, and seasonal accounts sometimes require semi-weekly service.

We have been able to improve our distribution cost by this method, and I would like to call your attention to Form No. 3 which has helped us accomplish this task. This report is a complete analysis of four of our bulk gas delivery trucks for the month of February, 1952. The reason for selecting these four units is that here we have our lowest and highest cost per gallon for delivering gas to our customers during the month of February. In addition we have three trucks operating from the same plant and operating in a radius of approximately 30 miles. This area is rather thickly populated and approximately 50% of the deliveries are made within a radius of 15 miles. The fourth truck operates from a small branch office located 40 miles from two other bulk plants and without a bulk plant in the city where the branch office is located, and it is necessary that this truck pick up its fuel from the bulk plant which is most convenient.

Reducing Delivery Costs

Let us first look at the cost per gallon to deliver the fuel before analyzing the reason for the difference in cost. The cost for truck No. 2 is roughly $\frac{3}{4}$ of 1 cent per gallon. Truck No. 4's cost is roughly $1\frac{1}{2}$ cents per gallon. Truck No. 3's cost is roughly 2 cents per gallon and truck No. 1's cost is roughly $2\frac{1}{2}$ cents per gallon.

This is certainly a wide variation in our cost and here is plenty of room for study and improvement in reducing our "Operating Cost" on bulk delivery of fuel. Let us compare some data we have shown in this report on trucks No. 2 and 3. These two trucks, as I mentioned before, operate from the same plant, both have city and country routes, both trucks are practically new and the net capacity on each is about the same (approximately 1500 gallons net). There are only 30 miles difference in the number of miles driven for the month and yet the cost of delivery is $\frac{3}{4}$ of 1 cent per gallon on one truck, while the other

TABLE 1.			
	No. 2	No. 3	Difference
Gas, oil, wash and lub.	\$ 27.77	\$ 31.67	\$ 6.10
Parts, repairs, tires, tubes97	25.03	24.06
Driver's salary	215.00	255.00	40.00
Depreciation	63.86	87.43	23.57
Insurance	56.35	56.35	.00
Total	\$363.95	\$455.48	\$93.73

truck has a cost of 2 cents per gallon.

Let us look at some other data and see if we can't find the reason for this wide variation in the operating cost of these two units. Let us take a look next at the "Direct Expenses" of these units. Truck No. 2's direct expense is only \$363.95, while the direct expense of Truck No. 3 is \$455.48, or roughly a 20% difference. Why? Well, we will have to dig a little deeper so let's see what size and type trucks are operating. No. 2 is a special, built-up F-6 Ford cab-over-engine job, and No. 3 is a conventional F-7 Ford truck. No. 2 and No. 3 are both 1951 models and utilize L. P. gas for motor fuel. For a quick glance at the direct expenses see Table 1.

Well, it is easy to see that it requires more fuel to operate an F-7 than an F-6 Ford truck. Only \$97 was spent on No. 2 for repairs while \$25.03 was spent on No. 3. There is also a difference of \$40 in salaries, which is due to length of service of one employe over the other. Investigations revealed that truck No. 3 was used to catch special and out calls which caused this truck to be driven a greater number of miles between deliveries, thereby increasing the cost per mile and the cost per gallon. This difference reveals that a few customers who require special deliveries will certainly increase your delivery cost.

Truck Cost Varies

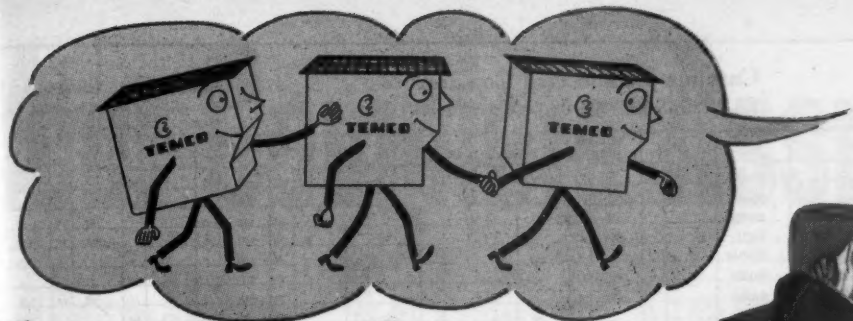
The last two items, depreciation and insurance, of course, are fixed items and they are shown only to reveal their effect on the direct cost. It is interesting to note, however, that the difference in the original cost of the two units certainly affects the delivery cost per gallon, during the years the trucks are being depreciated. Yet, if we get two additional years' service out of the F-7, this cost will be justified. That, too, is another

subject which could consume a lot of time and we will not go into it at this time. However, it too will warrant careful study over the years.

Now, to continue our study, we will note that the cost per mile to operate the No. 2 truck is 26 cents while No. 3's cost is 32 cents per mile, or a difference of 6 cents per mile. This cost would naturally drop if the trucks were driven more miles per month. But, I ask, why drive your trucks more than is absolutely necessary? You may reduce your cost per mile, but you will certainly increase your cost per gallon. That is, unless you increase your total gallons delivered per month by a substantial amount.

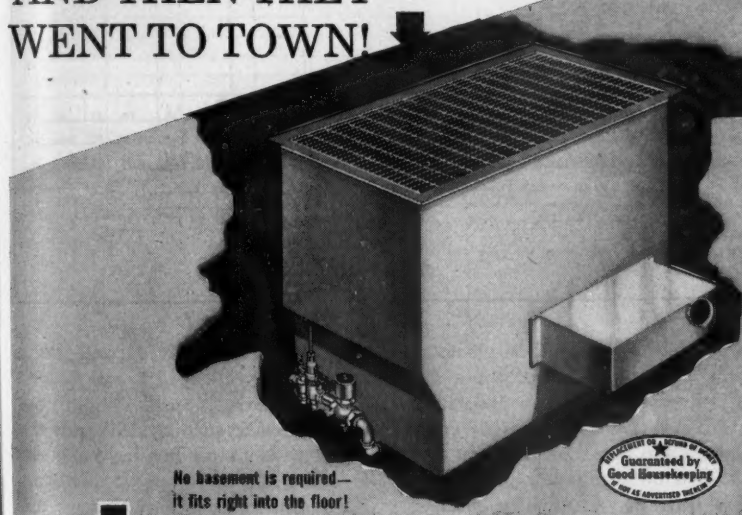
Miles Versus Gallons

Now look at the second column headed, "Total Number Deliveries." Truck No. 2 made 326 deliveries for the month and No. 3 only 154. Next, we note that No. 2 averaged deliveries of 2102 gallons per day while No. 3 only averaged 1202. No. 2 averaged 14 deliveries per day and No. 3 only 7. No. 2 averaged delivering 149 gallons each time, and No. 3 179 gallons per delivery. No. 2 drove an average of 61 miles per day and No. 3, 63 miles per day. Truck No. 2 averaged making a delivery for each $4\frac{1}{4}$ miles registered on the speedometer, while No. 3 averaged traveling $9\frac{1}{2}$ miles between deliveries. Truck No. 2 averaged 263 gallons per hour and No. 3 only 150 gallons per hour. Those are all very interesting figures but here is the payoff: *Truck No. 2 averaged delivering 34 gallons of L. P. gas for each mile his truck was driven while No. 3 averaged delivering only 19.3 gallons per mile.* Let us remember that both these trucks were driven practically the same mileage and it cost 6 cents per mile more to operate truck No. 3. Now it doesn't take



These little furnaces

WENT TO MARKET...
AND THEN THEY
WENT TO TOWN!



No basement is required—
it fits right into the floor!



Yes, TEMCO really started something when they introduced the TEMCO Automatic Gas Floor Furnaces a few years ago. Alert dealers all over the country used them to start a revolution in the Automatic heating field . . . reaped high profits, year after year, as TEMCO Gas Floor Furnaces eliminated the cost barrier and made Automatic Gas heat possible and practical for every home owner.

LET TEMCO GO TO TOWN FOR YOU!

What TEMCO has proved for successful dealers from coast to coast, TEMCO can do for you too, right now. This year TEMCO offers you the finest line of Automatic Gas floor fur-

naces ever to come from the assembly line of America's Gas specialists. And TEMCO backs the line with:

- The biggest national advertising campaign in TEMCO history.
- Sales promotion material second to none.
- Display material designed to bring in the customers and close them.
- The most complete and most liberal dealer cooperative advertising plan in floor furnace manufacturing history.

And TEMCO gas appliances are specifically engineered and AGA approved for LP, Natural and Manufactured gases. For the full story, for the first step to your biggest profit year, fill out this coupon.



THE TEMCO GAS WALL HEATER

(All new design for 1953)

Ideal for slab foundations and upstairs rooms. Fits into wall between standard 16" OC studding. Now making sales history.



TEMCO, inc.
NASHVILLE, TENN.

BUILDER OF OVER 1,250,000 GAS APPLIANCES

TEMCO, Inc., Department B-507
Nashville 9, Tennessee

Please rush your new catalogue and complete information on TEMCO Automatic Gas Floor Furnaces and Gas Wall Heaters.

Name _____

Firm Name _____

Address _____

City _____ Zone _____ State _____

Carolina Butane Gas Co., Inc.
DAILY GAS REPORT (OF BULK DELIVERIES)

Branch: Columbia Date: November 31 Truck No. 64
City: Salisbury Report No. 10

Date of Order	Order No.	Del. No.	Customer's Name	Account No.	25	Gal. Del. 214	Gal. Del. 197	Gal. Del. 184	Gal. Del. 154	Scale No.	Total Gal. Delivered	Cash	Charge	Total
12-29	1286	795	Burch-Gee Inn	XC-52		80	0			1	80	0	15	66
12-29	1287	797	E. C. Evans	XC-128		200	1			1	200	1	39	16
12-29	1288	798	Silver Inn Grill	XC-291		156	0				156	0	37	15
12-29	1289	799	Carroll's Garage	GC-171		500	0			3	500	0	108	15
12-29	1290	800	Preston Inn	XC-2162			100	0			100	0	18	52
12-29	1291	801	Steady-Run Baptist Church	GC-1689		100	1				100	1	21	63
12-29	1292	802	Amelia Hotel	GC-1641		130	0				130	0	28	12
12-29	1293	803	F. H. Houghman	XC-61			25	0			25	0	1	89
12-29	1294	804	Capone Lunch	XC-171			10	0			10	0	7	81
12-29	1295	805	A. J. Hurray	XC-162			117	0			117	0	28	72
12-29	1296	806	B. C. Cunningham	XC-162		160	1			2	160	1	97	16
12-29	1297	807	Richards Bros. Inn	XC-899			100	1			100	1	19	59
12-29	1298	808	A. V. Guley	XC-732		100	0				100	0	21	63
12-29	1299	809	A. L. Hiers	XC-1471		110	0				110	0	30	28
Total This Report						1570	2	682	2	11	2252	2	135	17
Brought Forward From Last Report					50	2785.8	7	1121.2	7	230	2	230	22	805.5
Total This Month To Date					50	2937.8	9	1743.4	9	230	2	2482.5	24	853.1
Gallons Delivered per Mile						Present odometer reading	7236.1	Previous odometer reading	2616.6		2519.5		Less tax	250.00
This Report					25.0	Previous odometer reading	2616.6	Previous odometer reading	2603.5		2519.5		Approved	825.50
Gallons Delivered per Mile						Mileage this report	89.7	Gallons Delivered (Miles)	284.6		2519.5		Branch Manager	
This Month to Date					23.7	Total mileage this month	1257							

CIRCLE ANY TRANSFER OF GAS AND DO NOT ADD IN TOTALS

① Receipt issued should equal this amount

a genius to figure special trips consume extra time and additional miles between deliveries and both are expensive.

Then, too, let us not overlook another very important item and that is the results in dollar volume. Truck No. 2's volume is approximately 30% greater than the volume of business done by our truck No. 3. Now, gentlemen, I ask you if here isn't an "Operating Cost" item that requires study and attention? By reducing the number of special trips we may find that two trucks could handle the business which is now requiring three. This would certainly reduce "Operating Cost."

I would like to repeat that truck No. 1 has no bulk plant in the area it serves. The nearest bulk plants are located 40 miles away in two opposite directions and this accounts for the major difference in the delivery cost per gallon. By erecting a plant at this location, we reduce the number of miles driven, save a lot of time, increase the life of the truck and decrease our cost per gallon for the fuel delivered. This saving will justify the investment in a plant and at the same time enable us to render better service.

We operate a total of 56 pieces of rolling equipment; 16 of these are gas delivery trucks, two are transports which are used for delivering cylinders and merchandise from central distributing points to retail stores, three private cars for officials, and the balance are service, cylinder delivery, and installation trucks. A detail report is kept on each unit daily and the next form I would like to discuss with you is the Daily Gas Report for the Bulk Delivery Trucks. The report shown is for the month of November, 1951, and is the report of Truck No. 4. (Form 4.)

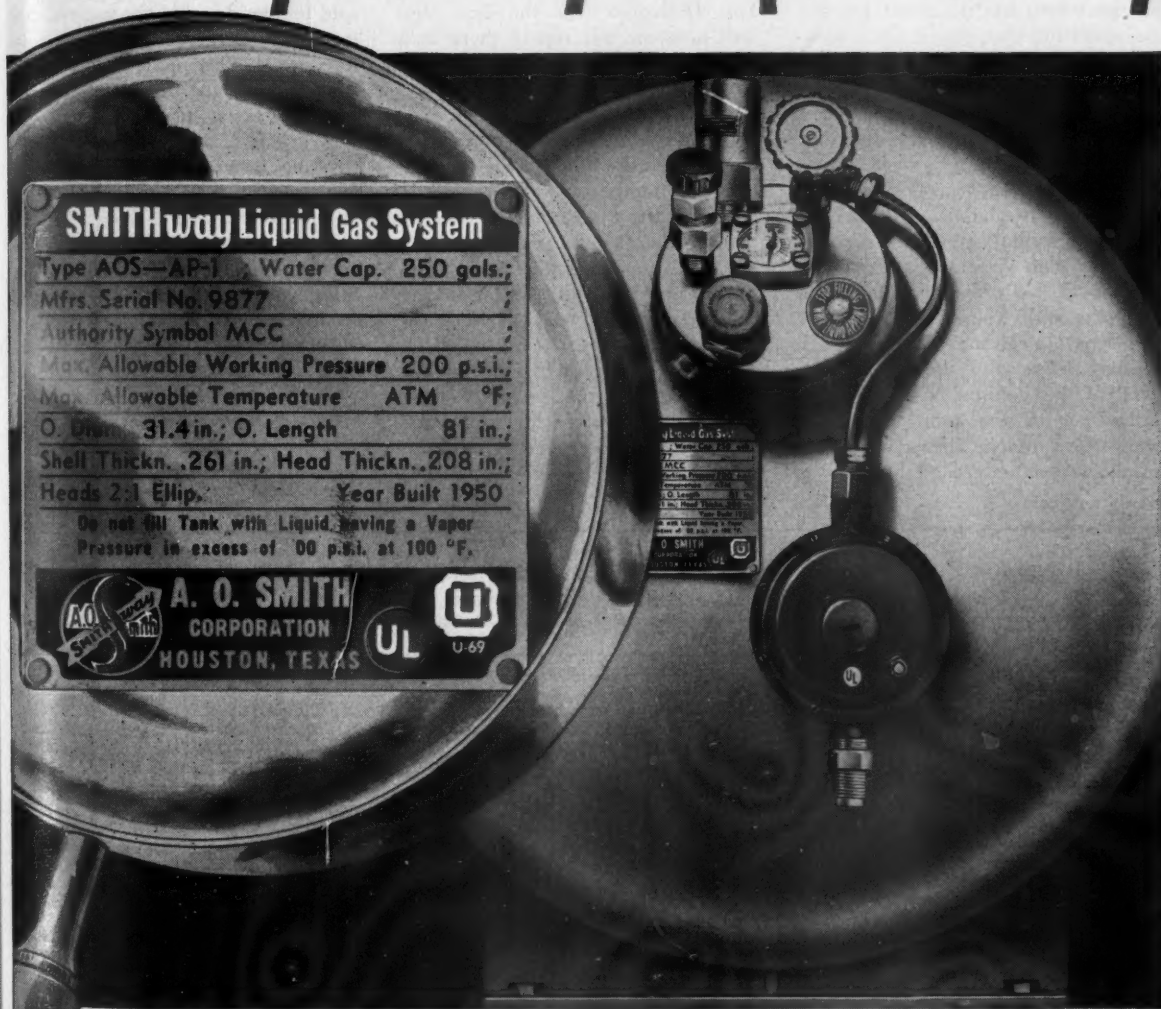
First, the date of the invoice is recorded. Next, the invoice or meter check number, and then the sales numbers. Note that no invoice or sales numbers are skipped. This is very important because the customers are to be worked from a route book in a chronological order and the route book is checked the following morning to see that the driver follows these instructions. The driver is charged with each invoice and under no conditions is he allowed to misplace these, and they are to be used in proper sequence. The sale number is automatically recorded on the invoice when the meter is

cleared after a delivery, and these are carefully checked to see that no sale number is skipped. The purpose being to make sure no deliveries are made without an invoice being inserted in the meter.

I might mention here that we use a liquid meter which is equipped with a duplicator that stamps both the sale number and the reading in gallons before and after each delivery. The meter is sealed and no one is allowed to break the seal except the superintendent or his assistant. In addition, we have devised a valve which works in conjunction with the carriage in the meter and the booster brake system on the truck. This one valve automatically locks the foot brakes on the truck when the meter handle is turned, stamping the meter check before delivery. The brakes will not release under any conditions until the handle is again turned after the delivery has been made. This is not only a safety device but assures you that the delivery recorded on the meter check was delivered at one location.

This eliminates the possibility of charging your customer for fuel that perhaps he did not receive. It makes it impossible for the driver to make a

Your Complete Assurance of Quality...Safety...Dependability



SMITHway Liquid Gas System

Type AOS—AP-1 Water Cap. 250 gals.;
Mfrs. Serial No. 9877
Authority Symbol MCC
Max. Allowable Working Pressure 200 p.s.i.;
Max. Allowable Temperature ATM °F;
O. Dia. 31.4 in.; O. Length 81 in.;
Shell Thickn. .261 in.; Head Thickn. .208 in.;
Heads 2:1 Ellip. Year Built 1950

Do not fill Tank with Liquid having a Vapor
Pressure in excess of 60 p.s.i. at 100 °F.



A. O. SMITH
CORPORATION
HOUSTON, TEXAS



A written guarantee is attached to every tank.

A.O. Smith

LIQUID GAS SYSTEMS

Atlanta • Chicago 4 • Dallas 2 • Denver 2 • Houston 2
Los Angeles 22 • Midland 5, Texas • New Orleans 12 • New York 17
Philadelphia 3 • Pittsburgh 19 • San Francisco 4 • Seattle 1
Springfield, Mass. • Washington 6, D.C.
International Division: Milwaukee 1

A. O. Smith Corporation
Dept. BP-453, Milwaukee 1, Wisconsin

Without obligation send me all information about
A. O. Smith Liquid Gas Systems and how selling
them can increase my profits.

Name _____

Firm _____

Address _____

City _____

Zone _____ State _____

delivery at two locations using one meter check. Without the use of this device, it is possible for the driver to deliver a small amount of gas in a customer's tank when no one is at home to verify the delivery and then proceed to an account and make a deal to sell him gas at a reduced cash rate, the driver then charging the entire delivery to the first customer who only received a few gallons instead of the total amount shown on the meter check.

The valve is a clever, inexpensive device which has no direct bearing on operating cost, yet, it has a wonderful customer sales appeal in that he is sure that the amount charged to his account was delivered, even though no one verified the delivery. This enables us to get more customers to accept gas deliveries on a regular route basis.

Next are the name, the account number, then the amount of gas delivered at the price for which the fuel was sold. The sales tax is kept in a separate column. Then the total gallons delivered is recorded. The total of this column is supposed to balance with the total figures at the various prices. Then the amount of the sale is entered either in the

cash or charge column, depending on which applies. This figure carried forward to the total column, and this total figure also must balance with the cash and charge sales for the report. Now note that the figures from the previous report are brought forward, which gives you at a glance the results of each driver for the day and the month to date.

At the bottom of this report, you have a record of the totalizer reading from the meter and this amount should balance with the "Total Gallons Delivered" for the day. You will note on this report there is a difference of .2 of a gallon. If this figure varies more than 1 gallon, the meter is pulled off for repairs.

In the center, you will see the previous and present speedometer readings; the number of miles driven today, and the total miles driven per month. Then on the extreme left is recorded the number of gallons delivered per mile today and the number of gallons delivered per mile for the month to date.

Now if you know your cost per gallon to deliver the fuel and the cost of the fuel delivered into the truck at the plant, then it is easy to figure your gross profit after the fuel has

been delivered. If you have figures available which reveal your average general overhead, it isn't too hard to determine the net profit you are deriving from each truck daily or for the month to date.

The next form is our Daily Cylinder Gas Report form (Form 5). It is similar to the Daily Bulk Gas Report except here we have listed the product delivered in pounds instead of gallons. This report, as you will note, lists the price for which the product was sold, total product sold for the day and the net receipts in cash sales, charge sales and total sales for the day. This report is also accumulative for the month to date revealing the number of pounds sold for various prices, total pounds sold this month to date, the total cash sales, charge sales and total dollar volume for the month to date. It also lists the present and the previous speedometer mileage readings for this report and the total miles driven for this month. Then, in the extreme lefthand corner, you will note we keep a record of the average number of miles driven per cylinder delivery for the day and for the month to date.

With this information, it is very easy for you to determine the de-

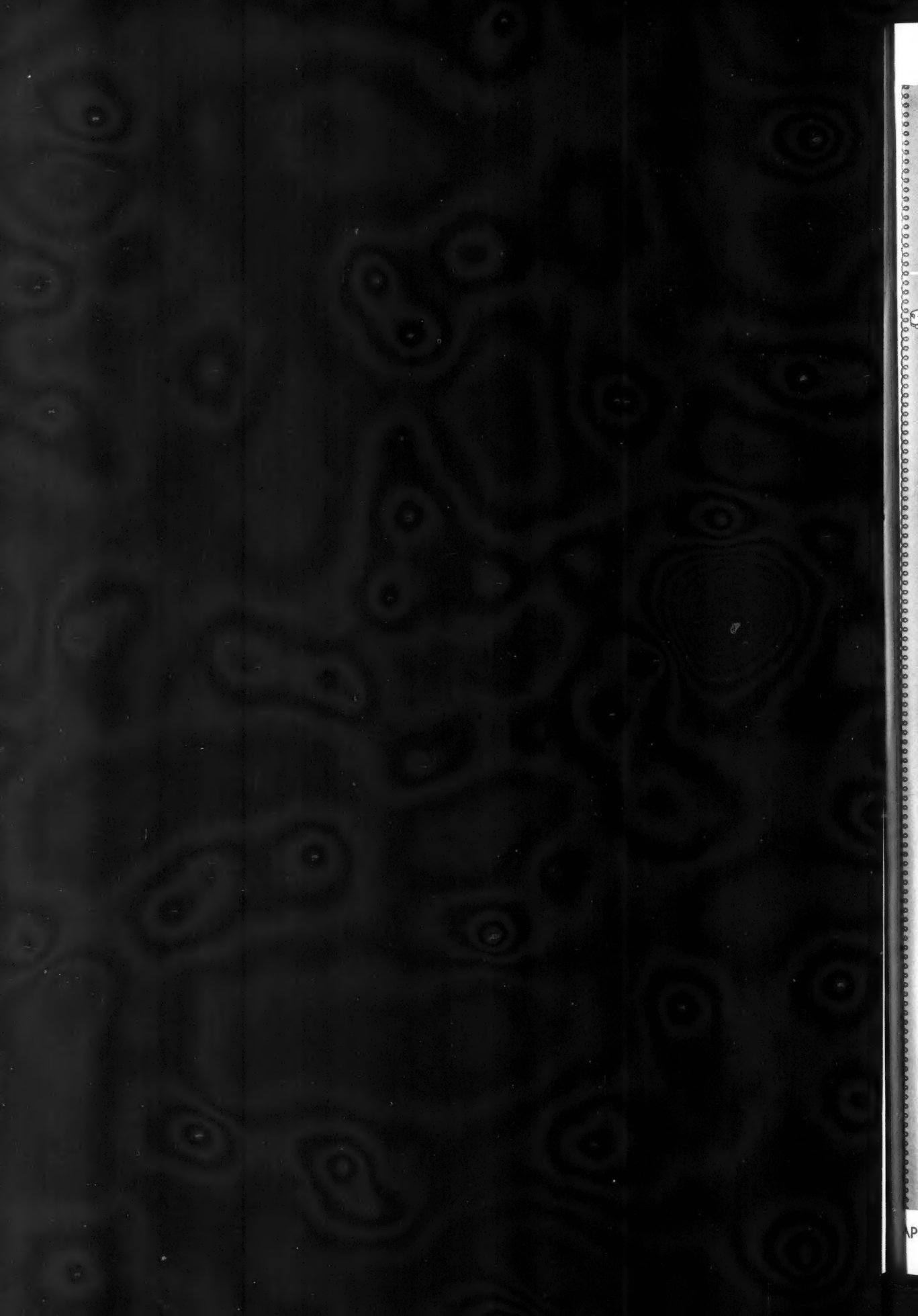
FORM #5															Carolina Butane Gas Co., Inc.															Branch: Columbia Driver: AFH														
															DATE: December 1, 1951															Truck No. 51														
															Wt. Cond. Gold															Report No. 23														
Date of Report	Report No.	Sub No.	Customer's Name	Account No.	Y	Cyl. Lbs. Del. 1st	Cyl. Lbs. Del. 2nd	Cyl. Lbs. Del. 3rd	Cyl. Lbs. Del. 4th	Sales Tax	Total Lbs. Delivered	Cash	Charge	Total																														
11-30	05456	02364	Don M. Spence	0157		100	0			27	100	9	27	9																														
11-30	05457	02365	Donnie L. Elton	02158		100				30	100		30	30																														
11-30	05458	02373	J. W. Adams	02216		100				30	100		30	30																														
11-30	05459	02368	W. E. Shelly	01202			100			24	100	8	24	8																														
11-30	05460	02369	A. B. Corley	02213			100			27	100	9	27	9																														
11-30	05461	02368	Willie Adams	02176		100				30	100		30	30																														
11-30	05462	02369	Elizabeth Burnaby	01550			100			24	100	8	24	8																														
11-30	05463	02370	J. E. Egan	02587			100			27	100	9	27	9																														
11-30	05464	02371	Reginald Whitlow	01922		100				30	100		30	30																														
11-30	05465	02372	Elizabeth Charles	02171		100				30	100		30	30																														
11-30	05466	02373	Carrie Matthews	02170		100				30	100		30	30																														
11-30	05467	02374	J. C. Cross	02668		100				30	100	10	30	30																														
11-30	05468	02375	Donna Pearson	02109				100		14	100		14	14																														
11-30	05469	02376	Phillip Taylor	021070		100				30	100		30	30																														
11-30	05470	02377	Thomas Carlin	02006		100				30	100		30	30																														
11-30	05471	02378	Benny Lambert	02051		100				30	100		30	30																														
Total This Report						1000	100	200	100	114	1500	96	1596	1596																														
Brought Forward From Last Report						100	16600	25200	7400	1200	116	8	25500	2625																														
Total This Month To Date						100	17600	25500	7500	1300	160	77	27100	2721																														
Present speedometer reading						20138.8					Checked by: D. Rogers					Last Pmt: 120																												
Previous speedometer reading						20298.0					Approved: _____					Branch Manager: 1275																												
Mileage this report						160.8																																						
Total mileage this month						2168.8																																						

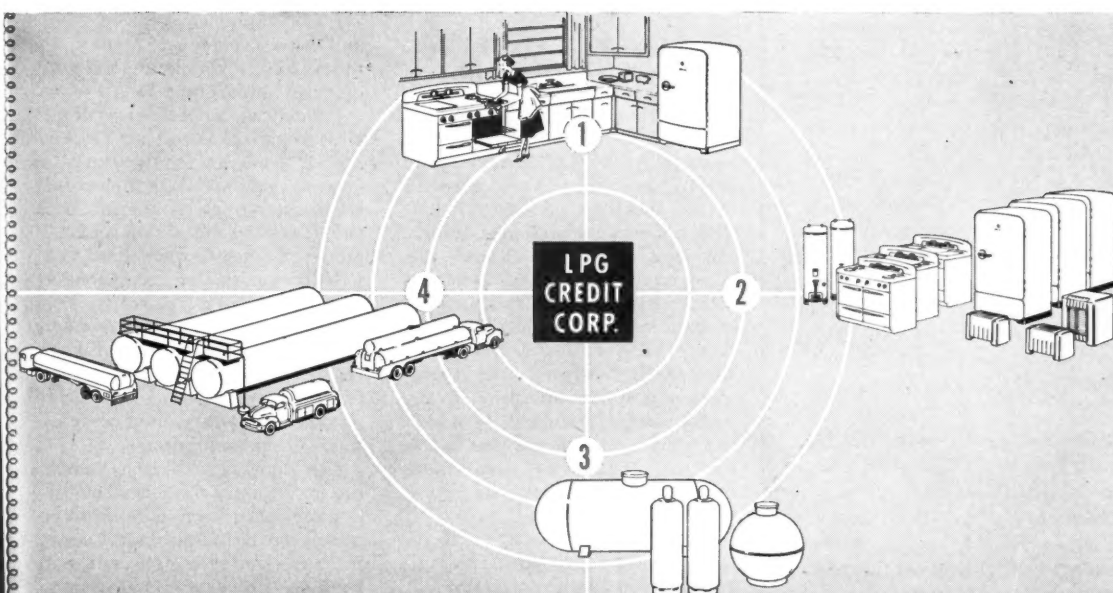
CIRCLE ANY TRANSFERS OF GAS AND DO NOT ADD IN TOTALS

X Receipt issued should equal this amount

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AN IMPORTANT SERVICE TO A VITAL INDUSTRY

LPG Credit Corporation offers

The Only Financing Services designed especially for the LP-Gas Industry

Whatever your financing problem, one of the four
LPG Credit Corporation plans will provide a practical answer.

plan 1 Financing of gas appliance sales to consumers; the lease fee (when container is leased) or the price of the complete installation (when sold outright); and the initial sale of gas.

plan 2 Floor Plan for financing inventories of appliances and containers purchased by the dealer for resale to customers.

plan 3 Financing of cylinders and tanks for dealers leasing systems to retail customers.

plan 4 Financing of bulk storage tanks, tank trucks and transports.

*sales
promotion*

As part of its services, LPG Credit Corporation offers a merchandising policy and complete sales promotion program as effective sales tools, including showroom display material, newspaper ad mats, radio spot announcements and direct mail pieces.

Inquiry on your company letterhead is invited.

LPG

LPG CREDIT CORPORATION

312 EAST 131ST STREET • CLEVELAND 8, OHIO

livery cost per cylinder. I would like to call your attention to the first column in the extreme lefthand corner under the heading "Del'd." The numbers under this column are the serial numbers of the cylinders delivered to the customer and under the fourth column under the heading "Ret." are the serial numbers of the cylinders which were picked up at the customers' premises. This information is transferred from this report to our cylinder control cards and in this way, we are able to keep track of all cylinders by serial numbers.

It costs money to keep detailed operating records, but we are finding it very profitable in our operation. For instance, we have been able to keep our trucks in much better mechanical condition and at the same time reduce our cost per gallon for the delivery of bulk fuel. Also, we have been able to reduce our cost on service calls and installation of new equipment. This automatically increases our net profits.

I have only covered the details on your auto and truck expenses on the operating statement. Each phase of your L. P. gas business has its operating cost problems. I believe that if you, as managers of L. P. gas businesses, will begin giving more serious consideration to your operating cost, you will have no real problems on your hands when and if the tide turns to a declining market.

Training Course Offered In Eight Sales Booklets

One of the crying needs of the liquefied petroleum gas business is met by the announcement that a complete LPG sales training course produced by the National Committee for LP-Gas Promotion, Chicago, is now off the press and available to industry companies.

Comprised of eight booklets ranging from 20 to 88 pages, the course covers all phases of L. P. gas and L. P. gas appliance salesmanship and includes a leader's guide, examination and answer sheets. It was nearly a year in preparation. Sales experts and technicians representing leading producers and marketers of L. P. gas, appliance and equipment manufacturers, several trade associations and other organizations contributed to the text.

The course has a four-point objec-

Are You Guilty of Price Cutting?

After a meeting with several industry members from various sections of our state and from what I hear that at various levels of our industry, some small bottled gas dealers and over-ambitious small bulk operators are throwing the L. P. gas business into chaos. These fellows, instead of creating new business, are pirating each other's customers, thus creating a price cutting situation and at the same time lowering a service standard by which the industry is known, due to the fact that little or no profits minimizes and destroys safe operations.

This business that we are in requires good bookkeeping and profits to maintain our equipment in the highest safety.

Therefore, I am convinced the time has come for some "frank" talk about the relationship between the customers and the L. P. gas dealers.

Since we all wish to protect the high standards of our own businesses, and that of the industry in general, and as we are all faced with heavy responsibilities such as insurance, regulations, labor and safety standards, I believe that a general discussion of these

and other problems facing our industry today should be a matter of great importance to all of us.

I feel that to present a united educational program to our customers and to assure them of good service and safe operations, we must ourselves operate with the greatest cooperation and harmony. To accomplish these ends I believe dealer management meetings should be called at a local level, notifying all competitors at this level with a program that would be of mutual satisfaction and profit and it can all be worked out if there is a complete unified representation.

The important thing to remember is, "in unity there is strength," in experience there is faith, in cooperation there is confidence, and in trust there is respect and, brother, we certainly have room for this kind of philosophy in the L. P. gas business today!

Sincerely,
Stan Beske
Director, Illinois L-P Gas Association
President, Kay Gases Co., Chicago.

In the March issue of "Butane-Propane News" there was an article devoted to this subject exclusively. I think this article covers the situation pretty thoroughly and ought to do some good.—Ed.

tive: (1) To teach L. P. gas salesmen and other contact employees the fundamentals of successful salesmanship; (2) to give them a thorough grounding in the history, production, distribution and utilization of L. P. gas; (3) to arm them with effective selling ammunition to use in competition with other fuels, and (4) to school them in the special techniques required to sell each of the principal domestic L. P. gas appliances.

Complete information about the new training course may be obtained from the National Committee for LP-Gas Promotion, 11 S. La Salle St., Chicago 3, Ill.

CNGA Publishes Technical Bulletin

The third edition of Bulletin TS-401 has just been released by the California Natural Gas Association. It is a revision of the 1945 edition, correcting a number of values shown in the previous edition of the tables

of physical constants on the basis of recently published data.

In preparing the new table of constants, the Technical Committee of the California Natural Gasoline Association has joined with the Technical Committee of the Natural Gasoline Association of America in selecting (for the hydrocarbons and associated compounds listed) the most reliable values published to date.

Price to members is \$2.50; to non-members, \$3. For copies, address: California Natural Gasoline Association, 510 W. Sixth St., Los Angeles.

Adds Storage Capacity To Expand Service

Foster Truck Service, Tracy, Calif., recently increased its butane storage capacity from 8000 to 18,000 gallons in keeping with the firm's slogan "No sale is too large or too small."

The new 20-ton storage tank, which was installed vertically to conserve space, permits the firm to expand its service for all users.

How to conduct

a Successful "Open House"

A "Grand Opening" is a great deal of work, but it can be highly profitable. It can also shorten the time required to put a new business, or a new branch, on a paying basis. Even though it may be just the opening of new and larger quarters for a business already established in a community, it can still develop new business, and build a large list of new prospects.

To make the "open house" most effective, plans must be worked out well in advance, allowing enough time to be sure that all details of the new quarters will be completed, and to have all display material and accessories on hand. As many of the floor samples as possible should be connected up ready to demonstrate.

Interest will be heightened if several new or radically improved appliances can be shown for the first time in that community. This enables the operator to reap the harvest of the manufacturer's introductory advertising campaign.

Manufacturers and their representatives are pleased to cooperate, and can almost always be counted on to see that floor samples of these new appliances and equipment are made available for display. In many cases they will send their own representatives to demonstrate the new items. This provides highly trained sales help for these special items, gives valuable sales training to the dealer's sales staff, and helps a great deal in handling the crowd of visitors.

To make the "open house" pay off, it is necessary to draw a large attendance. The advertising budget should be liberal, using newspaper space and radio announcements if these are available at commensurate prices, and signs at strategic places. If already serving customers in the area, personal invitations should be mailed, and signs on delivery trucks are a big help.

Attractive gifts should be on hand for all visitors—flowers or handy household items for the ladies, toys for the youngsters, soft drinks or simple refreshments for all.

The main attraction is always the raffle for the free prizes. The first prize should always be a major gas-consuming appliance. There should be several additional prizes, so everybody will be convinced that there is a good chance to win something.

Petrolane, Ltd., operator of a chain of L. P. gas distributing plants in California, has recently installed retail appliance and equipment stores in several branches where they have formerly sold only gas. Let's make a photographic study of the "open house" which they recently staged on the completion of their new store in El Centro. Then we will check the results.

Petrolane's El Centro "open house", which was held all day Saturday, February 21, was attended by more than 1200 people. These included the normal distribution of prospects and visitors. Here are the immediate results, tabulated up to Saturday night, February 28:

Appliance Sales

4 Refrigerators	\$2398
2 Ranges	597
1 Deep Freezer	550
2 General water heaters	234
2 Automatic Washers	650
4 Gas Clothes Dryers	1385
1 Air Conditioner	449
1 Servel Wonderbar	150
Miscellaneous appliances	549

Total appliance sales\$6962

Equipment Sales

28 Tractor conversions	\$5300
Tractor tires	900

Total equipment sales\$6200

Grand Total\$13,162

Three of the four refrigerator sales were the new Servel Automatic Ice Makers. And did you look at those gas clothes dryer sales, in a locality having almost the hottest and driest climate in the United States!

The 28 tractor conversion orders comprised the following: 11 IHC, 7 Minneapolis-Moline, 6 John Deere, and 4 Massey Harris.

It will be several more weeks before all of the prospects can be visited, and their needs ascertained.

During the open house Mr. Floyd Rowe, who brought the Reo truck which was loaned for display, sold 15 LPG equipped Reo Gold Comet engines to Charles E. Huston Co., growers and shippers of vegetables, for replacement of other engines in their fleet of trucks. While this was not a direct sale for Petrolane, it is a new gas account of considerable importance.

Yes, a "grand opening", if effectively planned and carried out, can be a profitable occasion.



After days of preparation, the new building is complete in every detail, including paint and landscaping. The displays are installed, and wherever possible are connected up and ready to demonstrate. The evening before the open house, the staff members are called together and briefed on their duties.



Three important new appliances are on display for the first time in the Imperial Valley—the Servel automatic ice maker, a gas clothes dryer and a hot or cold air conditioner. The displays are arranged around the wall to allow maximum space for the crowds.

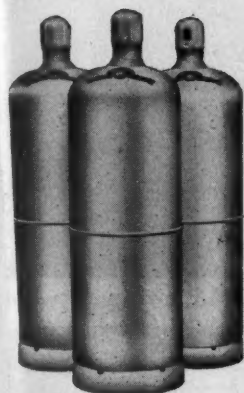


Big advertising space in the Valley papers announces the open house. Contractors who worked on the building help to complete a two-page spread. Spot announcements on the local radio station have been building up interest for a week. Mr. and Mrs. George Bennett read the ad, and decide to see the new items.



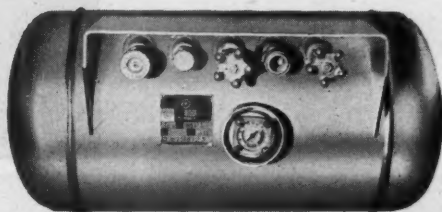
Almost before breakfast the farmers begin to arrive. Representatives from Reo and Ensign Carburetor Co. are on hand to show the Reo Gold Comet engine and the Super-M Farmall tractor and the carburetor equipment. Engine conversions will be a leading activity of the new branch.

Master Tanks for SAFETY • QUALITY ECONOMY



100#
I.C.C. CYLINDERS

The construction of Butane-Propane Tanks is big business and Master Tank and Welding have the facilities and experienced personnel to meet all requirements. Our huge plant extends over 36 acres, where we produce quality pressure vessels and Butane-Propane Tanks of all sizes. Write, wire or phone us about your tank problems.



FUEL SYSTEMS

Stock items range from 15" diameter by 31" long with 20-gallon capacity through 24" by 60" long with 103-gallon capacity. Special sizes on request.

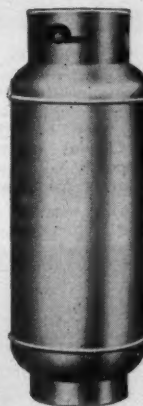
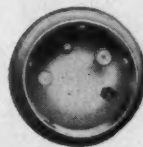


DOMESTIC SYSTEMS

Only one of our many tanks. A new 500-gallon Propane tank that meets all demand requirements. Compact fitting arrangement liquid withdrawal in top and bottom. Many other sizes of Butane and Propane Tanks of U-69 construction for above or underground.



20-LB. I.C.C.
CYLINDERS



also Storage Tanks
Truck Tanks

Refinery Equipment

Anhydrous Ammonia
Vessels

200# PROPANE CYLINDERS
200# W.P. U-69 A.S.M.E. 57
Water Gallon Capacity.



P. O. Box 5146 • DALLAS, TEXAS • Phone PROspect 2441

How to Conduct a Successful "Open House"

When the Bennetts arrive, in the afternoon, they find that the yard is full of cars and the store full of people. As they register for the drawing for \$1000 worth of prizes, Mrs. Bennett is given a gardenia, and the three Bennett boys are given balloons. There are soft drinks for everybody, and ice cubes coming out of the ice-makers constantly.



Driver Horace Bradley, who serves the Bennetts, gives them a personally conducted tour of the appliance department. Mrs. Bennett wants a larger refrigerator for her growing family. Young Charles estimates the soft drink capacity — figures that a still larger model will help.



They would also like to replace "Old Reliable" with a modern CP range. Mrs. Bennett is interested in the ease of cleaning. Dad checks the oven for size — wants to be sure it will hold the wild goose he is going to shoot next fall.



Roy Mylander, Ensign Carburetor factory representative, shows George how conversion equipment for his present Farmall M will save enough on the fuel bill to pay for mama's new range. The Bennett boys, George Jr., Dick, and Charles, would rather have a new red tractor.



The last event of the day is the drawing of the 19 merchandise prizes, totalling \$1000 in value. The grand prize is an automatic gas clothes dryer. Branch Manager C. V. (Cy) Shaddy officiates as the winning names are drawn from a wire cage. The Bennetts did not win prize, but it has still been a good day.



It was not necessary to be present to win. Most visitors registered, looked over the displays, and left, so there was never any congestion in spite of the large attendance. Here Manager Shaddy presents a coffee maker to its winners, Mr. and Mrs. Anton Amaan.



ASSOCIATION NEWS

New England LPGA

A bigger and better annual meeting is planned for the Liquefied Petroleum Gas Association of New England when members gather at the Hotel Bradford, Boston, April 15.

According to Lou Davis, secretary of the association, three separate sections will run concurrently during the afternoon session: (1) service and safety; (2) sales; (3) management. Experts assigned to handle the various phases include: George Webster, Ray Murray, Mel Ennis, Walter Scott, Bill Arpee, H. Emerson Thomas, Al Cote and Al Maddern.

A friendship hour will follow the afternoon session prior to the dinner, after which Lee A. Brand, vice president of the Empire Stove Co., will be the guest speaker.



Pictures taken at the December meeting of Wisconsin LPGA, showing (above, left to right): George Bortner, Shell Oil Co., Chicago; "Doc" Runde (secretary), Metro Gas, Sparta, Wis.; Tom Quail, Bottled Gas Corp. of Wisconsin, Milwaukee; Lee Barker, City Gas Service, Wisconsin Rapids, new vice president. Below: John McCormick, Dri-Gas Corp., Stevens Point, Wis., last year's president; Izzy Statz, director of fire prevention for Wisconsin; William Brenckle, new president.

New Jersey

The 1953 convention of the New Jersey LPGA was held Feb. 23-24 at the Ritz-Carlton hotel in Atlantic City. Murray Glass, of Modern Gas Co., Lakewood, was elected president, succeeding L. H. McGuire, of Suburban Propane, Whippany. Other new officers elected were Al Milchowski, of Somerset Home Gas, New Brunswick, vice president, and A. H. Hosbach, secretary-treasurer.

Elected directors for the one-year term were Lou Katz, Natural Gas Co., District No. 1; Harold Woodhead, Raritan Valley Gas Co., District No. 2; and Leo Zuckerman, Garden States Gas Co., District No. 3.

Two-year terms went to directors Arthur Benjamin, Modern Gas Co.; Al Clayton, Aco Gas Co., Toms River; and Harvey Stires of Esso-tane.

Hugh Wathen, South Jersey Gas Co.; Harry Rosen, Seidel Brothers, Inc.; and Roy Rohel, Sussee Welding



Co., were chosen to represent Districts 1, 2, and 3, respectively, for three-year terms on the board.

Emphasizing the cooperation that exists between the New Jersey state police and the state LPGA, the principal speaker was the state police superintendent, Col. Russell A. Snook, and during the business meeting Sgt. Pat Patterson announced that the state police are prepared to follow Pamphlet 58 and existing state regulations covering the LPG industry. In New Jersey violations and unsafe installations are misdemeanors.

Lawrence P. Ash, of the Coleman Co., Philadelphia, delivered an address entitled "Where Do We Go From Here?" and Arthur Kreutzer of the national LPGA spoke on organizational matters. A group insurance plan for association members was discussed at the business meeting. John Wood, of John Wood Co., Richmond Hill, N. Y., introduced the showing of "Servants on Tap," a motion picture produced by his company on industrial sales approaches.

Manny Gale was general chairman of the 1953 convention committee,

and the friendship hour and banquet entertainment programs were arranged by Edward Rasmussen (Trageser Copper Works) and Jack Laughlin (Warren Petroleum Co.). The association manager is Ed Lipman, of New Brunswick.

New York

Marcy Cole, Atlantic States Gas Co., Cortland, N. Y., was elected president of the New York State L. P. Gas Association at its annual meeting in Syracuse. Other officers are Roy R. Johnson, Fuelane Corp., Liberty, vice president, and Jack Neumann, Trageser Copper Works, Maspeth, L. I., secretary-treasurer.

Ohio

The Ohio Liquefied Petroleum Gas Association will hold its annual meeting and election of officers at the Breakers hotel, Cedar Point, Ohio, June 15-16.

This will be the first meeting that the Ohio association has held at a resort-type hotel and the organization is anxious for members to plan having their families attend, according to Joe Hogan, secretary-treasurer of the association.

Arkansas Dealers Plan New Management Institute

The second annual Management Institute of the Arkansas Butane Dealers Association is scheduled for April 7-10 at the Hotel LaFayette in Little Rock.

Subject matter to be covered includes accounting principles; operating forms and records; customer purchase and service records; credits and collections; banker-dealer relations; insurance coverage, and tariffs and taxes.

Registration costs for members will be \$15 and for non-members \$20, according to A. W. Porter, association executive secretary.

Names Transposed, Identities Not Confused

In reporting the midwinter meeting of the Arkansas Butane Dealers Association in our March issue, pictures were shown of "Johnnie" Porter, executive secretary, and M. L. Blair, state boiler inspector.

The captions under these photos were reversed, but both men are so well known in their state and throughout the entire industry that we are certain no confusion resulted.



On to Chicago!

Be there for the LP-Gas industry's big annual event — the LPGA convention. The dates: May 3-6. The place: Conrad Hilton Hotel, Chicago. Top-flight speaking program . . . huge trade exhibit . . . banquet and variety show . . . special ladies' events. Members and non-members cordially invited.

**LIQUEFIED PETROLEUM
GAS ASSOCIATION**
11 S. LaSalle St., Chicago

to all **NATURAL GASOLINE MEN** **GREETINGS**

from the
NATURAL GASOLINE SUPPLY MEN'S ASSOCIATION

We are looking forward to seeing you at the
THIRTY-SECOND ANNUAL CONVENTION
of the **NATURAL GASOLINE ASSOCIATION of AMERICA**

APRIL 29, 30 and MAY 1, RICE HOTEL, Houston, Texas

Members of the Natural Gasoline Supply Men's Association:

The Aber Company
Alliger and Sears Co.
Allis-Chalmers Manufacturing Co.
Aluminum Company of America
American Air Filter Company, Inc.
American Locomotive Co.
American Meter Company, Inc.
Armco Drainage & Metal Products, Inc.
Arrow Industrial Manufacturing Co.
Baldwin-Hill Company
J. B. Beard Company, Inc.
Bellco Industrial Engineering Company
The Belmas Co., Inc.
Bethlehem Supply Company
W. H. & L. D. Betz
The Bird-Archer Co.
Black, Sivalls & Bryson, Inc.
Blaw-Knox Co.
W. H. Bowden Engineering & Constr. Co.
Braden Steel Corporation
C. F. Braun & Co.
The Bristol Company
The Brown Flintube Co.
Brown and Root, Inc.
BUTANE-PROPANE News
Byron Jackson Company
Cameron Iron Works, Inc.
Chicago Bridge and Iron Co.
Clark Brothers Company
The Condit Company
Continental Products Corp.
Continental Supply Company
C. Lee Cook Manufacturing Co.
Cooling Tower Service Div.,
Santa Fe Tank & Tower Co. of Texas
The Cooper-Bessemer Corporation
Joseph A. Coy Company
Crane Packing Company
W. H. Curtin and Company
Dallas Tank Company, Inc.
Daniel Orifice Fitting Company
Davis Regulator Company
Dearborn Chemical Co.
De Laval Steam Turbine Company
Delta Engineering Corporation
M. H. Detrick Co.
Dresser Engineering Company
E. I. du Pont de Nemours and Co., Inc.
Allen Edwards, Inc.
Eggelhof Engineers
John W. Elder Company
Elliott Company
Engine Life Products Corp.
Engineers and Fabricators, Inc.
Ethyl Corporation
The Fish Engineering Corporation
The Fisher Governor Company

Flint Steel Corporation
The Fluor Corporation, Ltd.
The Foxboro Company
France Packing Company
Franklin Supply Company
Frontier Chemical Co.
Fuller-Austin Co.
Garlock Packing Company
Gasoline Plant Construction Corp.
General Electric Company
J. B. Gill Company
The Girdler Corporation
Goulds Pumps, Inc.
Graver Tank & Manufacturing Co., Inc.
Greene Brothers, Inc.
The Griscom-Russell Company
Grove Regulator Company
D. W. Haering and Company, Inc.
The Happy Company
Hercules-Lupfer Engine Sales Co.
The Hilliard Corporation
Hudson Engineering Corporation
The Industrial Insulators, Inc.
Industrial Scientific, Inc.
Inflico, Inc.
Ingersoll-Rand Company
Johns-Manville Sales Corporation
Kansas Paint & Color Co.
Kaylo Division
The M. W. Kellogg Company
Kieley & Mueller, Inc.
King Tool Co., Ltd.
The Koch Engineering Company
James S. Kone Co.
Koppers Company, Inc.
Ladish Company
Warner Lewis Company
A. M. Lockett and Company, Ltd.
Lubricos Specialties Mfg. Co.
The Lunkenheimer Company
Maintenance Engineering Corporation
F. H. Maloney Company
Maloney-Crawford Tank & Mfg. Co.
Manning, Maxwell and Moore
Steve C. Maples & Company
The Marley Company, Inc.
Jas. P. Marsh Corporation
Chas. Martin & Co.
C. A. Mathey Machine Works
Lynn McGuffey Co.
J. R. Meek Company
Metal Goods Corporation
Mid-Continent Supply Company
Minneapolis-Honeywell Regulator Co.
Moorlane Company
Moran Furnace and Sheet Metal Co.
National Petroleum News
The National Supply Company
National Tank Company

Naylor Pipe Company
Nordberg Mfg. Co.
Nordstrom Valve Company
Wm. W. Nugent & Company, Inc.
The Oil Daily
The Oil and Gas Journal
Oil Well Supply Company
O. L. Olsen
Orbit Valve Company
Pacific Pumps, Inc.
Paramount Supply Company
The Parkersburg Rig & Reel Company
Peerless Manufacturing Company
Perco Div., Phillips Petroleum Co.
Perry Equipment Corporation
Petro-Chem Development Co., Inc.
The Petroleum Engineer
Petroleum Processing
Petroleum Refiner
Pittsburgh Equitable Meter Div.,
Rockwell Manufacturing Co.
Plibrico Jointless Firebrick Co.
Podbielniak, Inc.
Power Machinery Company
J. F. Pritchard & Co.
Process Equipment Company
Puffer-Sweiven Co.
Refinery Engineering Company
The Refinery Supply Company
Republic Supply Co.
Riddle and Hubbell
E. W. Saybolt and Company
A. O. Smith Corporation
Southern Engine & Pump Co.
Stearns-Roger Manufacturing Company
Stentz Equipment Co.
Superior Manufacturing Company
Taylor Forge and Pipe Works
Taylor Instrument Companies
Tellepsen Construction Company
The Tennant Company
Tri-State Mfg. & Engr. Co., Inc.
Tube Turns, Inc.
Union Steam Pump Sales Company
United Centrifugal Pumps
Vinson Supply Company
Vulcan Steel Tank Corp.
Walco Engineering and Construction Co.
Walworth Company
Westcott and Greis, Inc.
Western Chemical & Supply Co.
Western Supply Company
The Wickes Boiler Co.
Woobank Machinery Company
World Petroleum
Worthington Corp.
Wyatt Metal and Boiler Works
Young Sales Corp.
John Zink Burner Company

LPGA District Conventions

Nearly 700 persons are expected to attend three district conventions scheduled by the Liquefied Petroleum Gas Association for April and June.

First of the series of regional sessions will be the Central States District convention and trade show, set for April 6-8 at Oklahoma City, Okla. Featured speakers will include L. T. White, Cities Service Oil Co., who will discuss "L. P. Gas Marketers' Problems," and Orville Roberts, Sin-

clair Pipe Line Co., whose subject will be "Atomic Energy."

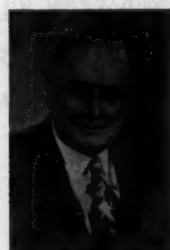
The event will be staged in the Skirvin and Skirvin Tower hotels. A buffet supper and fellowship hour is planned for April 6 and a banquet with entertainment and dance music for April 7.

"A Challenge for Sales in 1953" will be the theme of the East Canada District meeting of LPGA April 9-10 in Montreal, Quebec. Sessions will be held at the Windsor hotel.

June 14-16 are the dates chosen by the Mountain States District for its

annual convention and trade show at Troutdale-in-the-Pines, Evergreen, Colo. Program features already announced include a firefighting demonstration, a "gas versus electricity" demonstration by representatives of Harper-Wyman Co., and talks by Charles Corken, of Corken's Inc.; Douglas Havens, Dearborn Stove Co., and a representative of the National Committee for LP-Gas Promotion. A dinner dance and variety show will be held June 15.

Senator Wiley To Address LPGA Chicago Convention



Senator Wiley

One of the most important Congressional leaders of the present Administration, the chairman of the Senate Foreign Relations Committee, Senator Alexander Wiley, of Wisconsin, will be the principal speaker at the 1953 LPGA Convention in Chicago. According to an announcement by Stan Beske, president of Kay Gases Co., Chicago, and chairman of the convention arrangements committee, Senator Wiley will address the May 4 luncheon.

The approximately 3000 persons from all sections of the U. S. and from foreign countries who are expected to attend will also hear a talk on the ethics of competitive selling. This is to be given by Mort Farr, immediate past president of the National Appliance and Radio-TV Dealers Association, who has had 30 years' experience as a retailer of appliances in Upper Darby, Pa.

Donald M. Hobart, vice president and director of research for the Curtis Publishing Co., Philadelphia, will be the featured speaker at the joint session of the Appliance, Equipment and Tank manufacturers' sections on Wednesday afternoon, May 6. A dealers' panel and forum on "L. P. Gas Loads That Are Overlooked" is scheduled for the Marketers' section. Also meeting at that time, individually, are the Producers, Utilities and International sections.

Tuesday, May 5, has been set aside to give those present a full day to visit the 40,000 square foot trade show and talk with representatives of the 196 exhibitors. This year's show, the largest so far, occupies all of the Conrad Hilton hotel exposition hall and annex and will be open Sunday afternoon, May 3, before the convention,

STORAGE



Underground STORAGE

"SMOKY'S" Hot Tips . . .

If you want plenty of gas next winter

we had better talk about Storage *NOW*.

You'll have gas when you need it most

. . . regardless of season or ratio.

Don't delay another day . . . Underground

Storage can solve your storage problems.

Contact: G. H. "Smoky" Billue now . . .

SECURITY UNDERGROUND STORAGE COMPANY

615 Sunset Drive • Phone 24067 • Wichita Falls, Texas

as well as Monday and Wednesday mornings and all day Tuesday.

On the entertainment side, "home-spun philosophy" will be provided at Wednesday's luncheon by humorist Cal Tinney, whose comments are known throughout the country from his radio and television appearances and newspaper and magazine writings.

The annual "Gas-Flame Gaieties," which brings the convention to a rousing close on Wednesday evening, May 6, will feature Rufe Davis, billed as "Hollywood's Most Fashionable Hillbilly"; the Malone Sisters and Moran; Van de Velde, "Artistry in Balance"; Howard Hardin, "Juggling's Jolly Jester"; and the McRae Dancers.

Special events for the ladies have been arranged by a committee headed by Mrs. Beske.

World's Greatest Oil Show Marks 30th Anniversary

The 30th anniversary of the International Petroleum Exposition, one of the world's greatest industrial shows, opens in Tulsa, Okla., May 14 for a 10 day run.

Known as the "world's fair" of the worldwide petroleum industry, the exposition is assured of exhibits valued at approximately \$100,000,000. Display space has been sold out twice, necessitating two large additions to the plant which accommodated the last oil show in 1948.

More than 1500 exhibits are scheduled, and more than \$2,000,000 will be invested in permanent plant and equipment on the show grounds. In addition to the commercial exhibits, one of the outstanding features will be the educational "Hall of Science", recognized as the world's foremost museum of science and industry devoted exclusively to petroleum and its products.

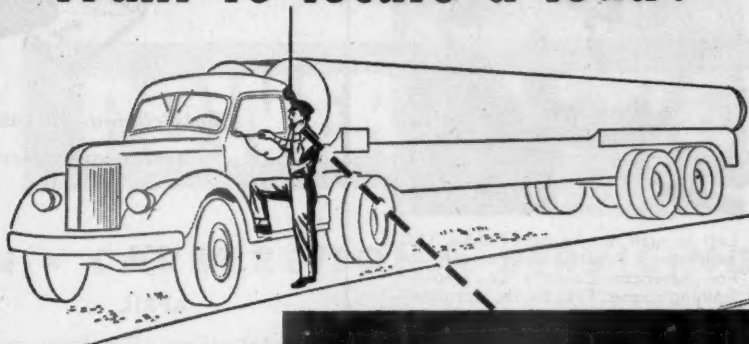
According to William G. Skelly, president of IPE, about 98% of the firms participating in the last show are exhibitors again, with dozens of new firms using space.

"The scientific and inventive genius of the oil industry has lost no ground in the past five years," Mr. Skelly observed. "New innovations booked for the 1953 oil show indicate that industry research has created amazing new services, and indeed new business, since the last show."

Alabama Dealers Offered Employee Training Course

Pan American Casualty Co. officials plan a second series of employee

Want to locate a load?



Find it FAST with RCA 2-Way Radio



Here's how you shrink TIME and DISTANCE—for increased profits.

RCA 2-Way Radio puts you in constant contact with your drivers—lets you locate them and talk to them any time, anywhere—for more deliveries and greater profits from every trip.

With RCA 2-Way Radio in your headquarters and your trucks, you dispatch your trucks *while they're on the road*. On completion of delivery, your drivers can report in by radio, without wasting a minute or a mile. When emergencies arise, radio puts you in contact at once with a truck *right in the area*. You'll find you save hours, miles, and DOLLARS every day when you equip your trucks with RCA 2-Way Radio.

Check the Savings of a Statewide Radio Plan

Ask your RCA representative to tell you how LPG organizations in other states have achieved substantial economies and extended coverage by forming statewide radio systems. He can help you take the first steps toward forming your own organization.

Do it best with RCA 2-Way Radio

Here's why fleet operators all over the country are specifying RCA 2-Way Radio to cut costs and save time:

EASY TO USE as your telephone • COMPACT—takes less space than a spare tire • TOUGH enough to take the roughest use • RELIABLE—engineered by the leaders in electronics • PRACTICAL—easily serviced.



RADIO CORPORATION of AMERICA

FOR LITERATURE . . . MAIL COUPON NOW

RCA Engineering Products, Dept. 204P, Camden, N. J.
Please send me information on RCA 2-Way Radio for Industry.

Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____





Left to right are Truman Adkins, LPG educational director and instructor of Pan American Casualty Co. employee training course; F. L. Elkins, vice president and safety engineering director, and Lamar Watts, LPG underwriting specialist.

training and safety courses of members of the Alabama LP-Gas Dealers Association. The second series of courses will be held at Mobile, Monroeville, Birmingham, Demopolis, Anniston, and Dothan, Ala. Each course lasts three hours for three consecutive nights and Pan American completion certificates are awarded to all individuals completing the course.

The course is available to all of the members of the Alabama LP-Gas Dealers Association regardless of whether or not they are carrying their insurance with Pan American.

Truman Adkins, instructor, formerly taught similar courses in Texas for over four years through the extension division of the University of Texas.

Pan American Casualty Co. has been very active in the LPG insurance field for several years and is currently advisory member to the insurance committee of the Liquefied Petroleum Gas Association.

Oregon Firemen Sponsor Training Program

Fire Department authorities across the nation continue to acquaint personnel with the physical properties and characteristics of liquefied petroleum gases in order to more intelligently cooperate with the LPG industry.

The Oregon Association of Fire Chiefs and the State Fire Marshal's Department jointly sponsored a series of evening classes recently for both full time and volunteer workers. The classes were part of an organized program designed to improve fire prevention and fire suppression practices. A full three-hour session was devoted to L. P. gas.



CALENDAR

All associations are invited to send in dates of their forthcoming meetings for this calendar.

1953

APRIL

April 1-2—Illinois LPGA. Spring convention. St. Nicholas hotel, Springfield.

April 6-7—Montana LPGA. Annual meeting. Northern hotel, Billings.

April 6-8—Central States District LPGA. Annual convention and trade show. Skirvin and Skirvin Tower Hotels, Oklahoma City.

April 7-10—Arkansas Butane Dealers Association's second annual Management Institute. Hotel La Fayette, Little Rock.

April 8—Wisconsin LPGA. Annual meeting. Whiting Hotel, Stevens Point.

April 9-10—East Canada District LPGA. Annual convention and trade show. Windsor Hotel, Montreal, Que.

April 13-14—Assn. of Nebraska LPG Dealers. Annual Convention. Fontenelle hotel, Omaha.

April 15—LPGA of New England. Annual meeting, Hotel Bradford, Boston.

April 15-17—Midwest L. P. gas service School. Iowa State College, Ames, Iowa.

April 16-18—Florida L. P. Gas Assn. Annual meeting. Biltmore hotel, Palm Beach.

April 17-18—Liquid Gas Dealers Assn. of California. Annual meeting and trade show. Alexandria hotel, Los Angeles.

April 19-21—Mississippi L. P. Gas Dealers Assn. Annual convention. Edgewater Gulf hotel, Edgewater Park, Miss.

April 24-25—Northwest District, LPGA. 6th annual meeting. Multnomah hotel, Portland, Ore.

April 29-30-May 1—NGAA Annual Convention. Rice hotel, Houston, Texas.

MAY

May 3-6—National LPGA convention and trade show. Conrad Hilton hotel, Chicago.

May 18-22—National Fire Protection Assn. Annual meeting. Palmer House, Chicago.

May 20-22—Gas Appliance Manufacturers Assn. Annual Meeting. The Greenbriar, White Sulphur Springs, W. Va.

May 24-30—Southern LPGA Service School. Louisiana State university, Baton Rouge.

JUNE

June 7-9—Arkansas Butane Dealers Association. Convention and trade show. Little Rock.

June 8-9—Utah LPGA, Salt Lake City.

June 8-9—South Dakota Liquefied Petroleum Gas Assn. Alexander Johnson hotel, Rapid City.

June 14-16—Mountain States District LPGA. Annual convention and trade show. Troutdale-in-the-Pines, Evergreen, Colorado.

June 15-16—Ohio LPGA. Annual meeting. Breakers Hotel, Cedar Point.

June 16-18—Missouri L. P. Gas Assn. Annual convention and trade show. New Jefferson hotel, St. Louis, Mo.

June 22-23—Wyoming LPGA, Annual meeting, Townsend hotel, Casper.

June 24-26—Texas Butane Dealers Assn. Annual convention and trade show. Baker and Adolphus hotels, Dallas.

June 25-27—Michigan LPGA. Summer meeting. Johnson's Rustic Resort, Houghton Lake.

June 26-27—Minnesota Petroleum Gas Association. Second annual summer meeting. Edgewater Beach hotel. Detroit Lakes.

JULY

July 19-21—Tennessee LPGA, Andrew Jackson hotel, Nashville

July 26-28—Kentucky LPGA. Annual convention. Seelbach hotel, Louisville.

AUGUST

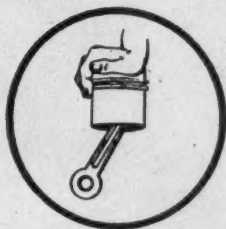
Aug. 31-Sept. 2—Alabama L. P. Gas Dealers Association. Montgomery.

SEPTEMBER

Sept. 9-12—5th Eastern LPG Service School. University of Bridgeport, Bridgeport, Conn.

Sept. 14-17—Texas Butane Dealers Assn. Management Institute Training Program. Lubbock.

Sept. 14-23—International Petroleum Exposition. Tulsa, Okla.



Butane-Propane

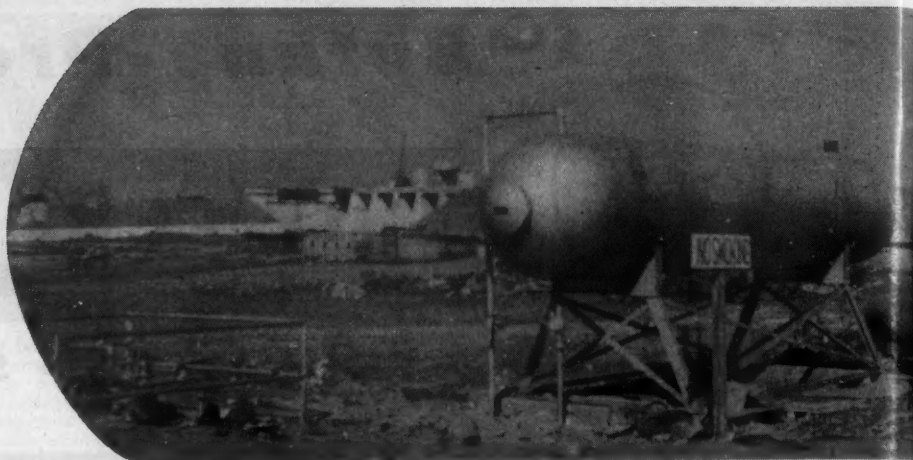
POWER SECTION

INSTALLATION • CARBURETION • SERVICING



L. P. gas is a better deal for the livestock hauler, the animals, and the shipper. The clean exhaust avoids the customary soot and oil which depreciate the value of the animals and their hides or wool.

Falcon Dam propane storage tank, 2,927 WG capacity, with spillway of dam in the background.



LPG Plays Important Role in Construction of International Dam

PROANE is playing an important part in the construction of the Falcon Dam, another of the world's greatest conservation and power projects, on the lower Rio Grande river. Lacking just 106 feet of being five miles long, the embankment spans the river and the international boundary line about 70 miles southeast of Laredo, Texas. It will control floods, which have been disastrous in the past, store water for the irrigation of several million acres in Texas

and Mexico, and provide hydroelectric power through two power houses, each developing 31,500 KW, one of which is located on each side of the International Boundary.

The compacted earth and rock fill embankment which forms the dam will be 26,294 ft. long, nearly 1000 ft. wide at the broadest part of the base, and will carry a 35 ft. roadway on its crest. The structure will contain 12,500,000 cubic yards of earth and rock fill, and will be surfaced on its upstream face with 420,000 cubic yards of rock to protect against wave erosion.

Most of the rock for the dam, and the 261,000 cu. yd. of concrete required for the power house and spillways structures, are being moved by a fleet of 38 trucks operating on L. P. gas. These include 20 International LF192's with 406 cu. in. engines, 14 Ford F-8's, and 4 Fords F-7's. Additional units operating on L. P. gas are 34 service trucks and pickups, seven welding machines, two Joy drills, and one Lorain motor crane.

Since this is an international project, the construction work is being supervised by the International Boundary and Water Commission in the United States, and by the Ministry of Hydraulics of Mexico. The

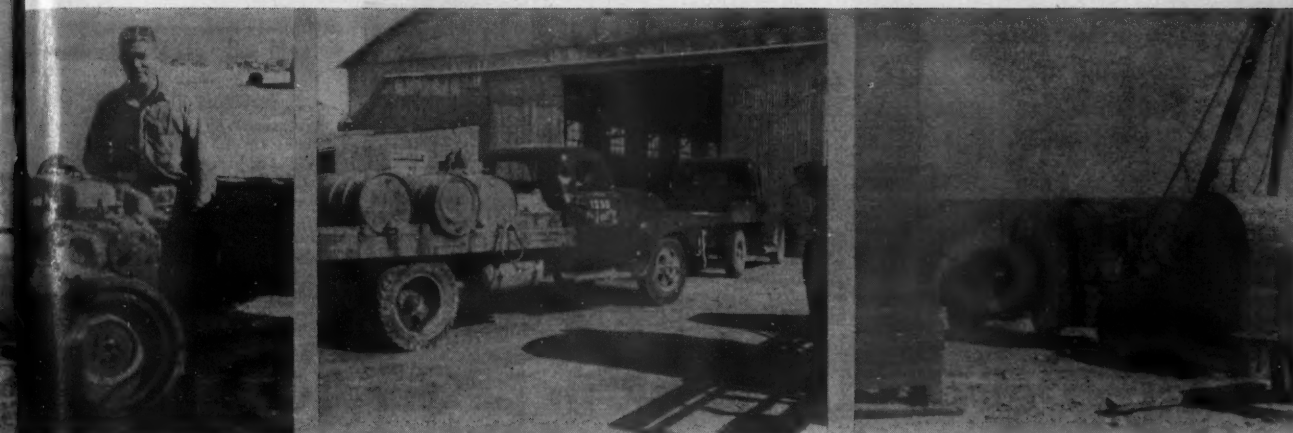
actual construction is being done by Falcon Dam Constructors on the U. S. section, and Constructora Intercontinental, S. A., on the Mexican section. The former is a partnership of seven established contractors existing under the laws of the United States, and the latter is a Mexican corporation owned by the same group of contractors. These include C. F. Lytle Co., Sioux City, Iowa; Amis Construction Co., Oklahoma City, Okla.; San-Ore Construction Co., McPherson, Kan.; Massman Construction Co., Kansas City, Mo.; Tellepsen Construction Co., Houston, Texas; Foley Bowers, Inc., St. Paul, Minn.; and Edward Petersen Co., Omaha, Neb.

The construction is taking place within an international zone established for this purpose by treaty between the two countries. This, and the common ownership of the two operating companies engaged in the project, makes it possible for the personnel and equipment to work back and forth across the international border, which greatly facilitates the operation. Construction was approximately 80% complete on January 1, 1953, and the dam is expected to go into operation late this year.

The use of LPG in the vehicles on



Wesley Verduzco, shop foreman, displays shop-built steam cleaner. Dry detergent is placed in the feed-water barrel at top of picture; steam generator below.



Above (left): One of the engines that shop foreman Verduzco has cleaned. (Center)—One of numerous service trucks operating on propane. (Right)—Propane operated winch truck moving a section of concrete form.

this project is resulting in substantial economies. According to Roy H. Theis, executive assistant to the project manager, the fuel costs them about two-thirds as much as gasoline. While it is believed that there has also been a maintenance saving, the records have not yet been developed to show how important this factor is. As in all such construction projects, avoidance of tie-ups for maintenance work is of more importance than actual cost, and in this respect results have been highly satisfactory.

In addition to the motor fuel uses on the project, propane is also being used to fire a steam cleaning plant used in the maintenance shop, and for the heating of rivets in construction of the various steel structures used in the outlets and the power in-

stallations. Both the steam cleaning plant and the rivet heater were built on the job, using available materials.

About 1200 employees are working on the project. Four hundred of these get their meals in the company mess hall, which is equipped with propane ranges and other cooking units. Fuel supply for the commissary department is a 2400 gal. tank. Propane is also supplied for domestic use in six residences occupied by executive and supervisory personnel. These draw fuel from a 1250 gal. tank.

For the industrial uses, there are a 6850 gal. tank on the Mexican side, and 2927 gals. of storage on the American side. Fuel for the entire operation is supplied by Sun Oil Co., and delivery is by truck and trailer. Total

consumption is about 75,000 gals. per month.

C. C. Hill, sales manager for Sun Oil Co., supervised the installation of the storage tanks, made the adjustments for all appliances on the project, and assisted with the conversions of the power equipment.

While a great deal of diesel equipment is in use at the dam, for which conversions have not been attempted, the LPG units are under the observation of key personnel representing all seven of the contracting companies engaged in the joint operation. Their knowledge of propane gained on this job will go with them to their future assignments, and should be of material assistance in spreading the use of the most satisfactory engine fuel on earth to other projects.

Below (left): KB6 International with Jay rock drill. Saddle tanks on either side, and twin tanks behind cab, permit continuous operation at the quarry. (Center)—Propane-burning rivet heater, designed and built on the job. (Right)—Scroll cases for the powerhouse on the US side were assembled on the job, using thousands of rivets from the portable propane rivet heater.





Sam Heine, driver for Western Livestock Transportation Co., gases up to give 300 sheep a ride to market in the double deck truck and trailer outfit. Joe Nunes, owner of WLT, looks on. Walter Silva, driver for Buck's Butane-Propane Service, brings in a transport load of gas.

LPG Delivers Livestock in Better Condition—and at Lower Cost!

By Norman Bowman

WHEN Western Live Stock Transportation Co., of San Jose, Calif., brings in a flock of 304 sheep double-decked aboard one of its three 60-ft. LPG-powered truck and trailer units, the sheep may not be white, but at least they're no blacker than when they left home.

"You should see some animals when they come into terminals!" says operator Joseph E. Nunes. "Their hides are black and greasy from soot, and believe me, the men who have to handle them complain when they are like that! They never complain about the stock we haul being dirty," he boasts. "Our drivers are happier, too, because they don't have to scrub off a coat of soot when they get to their destination. That's a minor point, maybe, but true just the same."

While sheep carried on the upper story of a double-decked truck are particularly damaged by deposition of oily soot on their wool, the packinghouse, feeder lot, and ranch operators who take delivery also applaud the cleanliness of steers, horses, hogs, and dairy stock when they are hauled behind smokeless LPG-powered engines. "I don't know whether a steer prefers one kind of truck or another to ride in," quips Joe Nunes, "but at least he doesn't get smoked before slaughter."

"Soot is at a minimum with any engine in top condition," Mr. Nunes adds, "but with an L. P. gas-powered engine pulling the truck, soot is practically no problem and clean animals are assured all the time." And the use of LPG engines, with their clean-

ness and reliability, has brought him repeat business ever since he began using that fuel in 1946.

Now, from his headquarters shop on the Bayshore highway just north of San Jose, the Nunes trucks radiate to all points in California from an area, the Santa Clara Valley, which itself is a top beef, dairy herd and livestock producing center.

Joe Nunes was born on a farm not far from San Jose and has followed livestock production all his life. Thus it was not unusual that he should start his own transportation service in 1938. A succession of gasoline and diesel-powered trucks served his needs until 1946.

Makes LPG Decision

"That was the year," he recalls, "I decided I wanted a new Peterbilt rig powered with a Hall-Scott engine. My decision on fuel was made after I found they only made L. P. gas or gasoline engines, and I did not want gasoline.

"That was the best decision I ever made. I now have three L. P. gas units and a diesel rig, and when I buy my next one it will be powered with propane."

Nunes' trucks range every part of California and cover every type of road over which a heavy vehicle can be negotiated. Hundreds of head of stock have been loaded from pens on ranches served only by narrow roads more suitable for jeeps than for heavy trucks. Whether it be back roads, mountain driving or long hauls where time is the problem, the L. P.

gas trucks provide all the power needed and dependability as well, Mr. Nunes declares.

"Power is vital in our business, where muddy roads, grades which can make a load of live animals hard to handle, or tight time schedules to permit feeding or watering of stock are encountered," Mr. Nunes emphasizes.

His L. P. gas-powered trucks are delivering about 3½ miles to the gallon of L. P. gas used, and each travels about 90,000 miles a year. Maintenance economy is outstanding, he declares.

"We pulled down one of the Hall-Scotts at 300,000 miles recently and found it so mechanically perfect it was reassembled with the same parts. I think these engines will run at least 300,000 miles any time without overhaul and will go 500,000 miles before replacement of major parts is necessary. That is the essence of dependability."

Mr. Nunes' LPG rigs are fueled by Buck Butane & Propane Service, Inc., at 12th St. and Bayshore Highway, just a few blocks away. It's a far cry from the days—not so long ago—when three men and two busy sheepdogs took days to move a flock to market over dusty roads, giving accidents time to happen, and finally arriving footsore, weary, thinner, and very, very dusty. And it's quite an improvement over the gasoline and diesel transportation that brought the sheep to market faster but dirtier. With LPG in the fuel system, "Baa, baa, black sheep," is just a nursery rhyme.

Signboard Carburetion Ads Talk Directly To User

Dix Manufacturing Co., Los Angeles, has used many kinds of advertising in the past with varying success. Recently they tried a new form—billboards—and the results have been outstanding. Presenting a product that is usually sold only through trade channels—LPG carburetion equipment—the billboard campaign is framed to go directly to the user.

The present sign has been located on San Fernando Blvd., a well traveled artery in the northern part of Los Angeles, for the past three months. It is lighted until midnight so it receives maximum attention throughout the day and evening.

During the three-month period, the sign has produced approximately 200 calls. From these, more than 50 sales have been made. Leads are turned over to four dealers located in the Los Angeles metropolitan area. Follow-ups and installations are made by these dealers. At no time does the manufacturer enter into the actual sales.

The sign costs \$64 a month and, according to Dick Adair, president of the company, the returns have far more than paid for it. Mr. Adair heartily recommends this form of advertising to dealers in the carburetion end of the L. P. gas industry and he plans to try to promote similar signboards with his distributors throughout the country.

This experience has proved conclusively to Mr. Adair that the public is interested in LPG carburetion and will respond when information is made available.

Cost-Profit Estimate Form Makes Carburetion Sales Easy

By Tom Clark

Assistant Sales Manager, Century Gas Equipment Co., Los Angeles

MANY dealers and salesmen have difficulty in selling L. P. gas carburetion conversions, but this is really the easiest selling in the world. The prospect is primarily interested in only two things: (1) how much it will cost, and (2) how much it will save. When we give him the answers to these two questions, in the proper perspective, the sale is made.

So the typical salesman figures the deal out, and tells the prospect, "The conversion will cost \$214.16 per engine, and the saving will be the difference between what you pay for gasoline and the price of L. P. gas—six cents per gallon."

Let's suppose that in this particular case the figures are correct. They still do not present an attractive picture. The salesman has talked about a cost of more than \$200, and a saving of six cents. The trouble is that the salesman has given two figures that are not comparable, but they



Tom Clark explains how to use estimate sheet to obtain needed information for estimating tractor conversion jobs.

stick in the customer's mind, and once there, they are hard to remove.

The fuel saving that has been quoted is for just one gallon—enough to operate the engine for only a few minutes, whereas the money put into the conversion buys a permanent improvement for the life of the engine. The conversion money is spent only once, but the saving on each gallon is repeated every time the engine uses another gallon. Over the lifetime of the engine, these repeated savings add up to a great deal more than the cost of the conversion. If we talk about conversion for the life of the engine, we are entitled to talk about savings for the same period.

Our prospect will see the whole picture only if it is called to his attention. The solution is to do all the figuring for him, and leave nothing to his imagination.

Let's talk to the prospect about saving more on his fuel than he spends for the conversion. If we can not give him a deal like that, we have no right to even talk to him about it. And let's not just talk. He can see much more clearly than he can hear, so let's show him. When we figure out how much he will save, we must do it on paper. Let's show him these figures. While we are about it, let's put the figures in a form that makes it easy for him to reach the proper conclusion, and to make it easier,



Highway signboard starts new vogue in carburetion advertising.

let's show them off to the best advantage.

The customer naturally knows that when he puts his money into these conversions, he will not make any profit on the deal until after the saving has returned the amount of his investment. If it takes a long time to make this saving, he will not be interested, and we cannot blame him. He is entitled to know this fact, and we should give it to him straight from the shoulder, without making him figure it out for himself. If we can show that he will get his investment

back quickly, he generally has only one more important question—"How do we make this conversion?"

All of the above is experience, and we have seen it repeated many times. The salesman who works on this basis makes frequent sales, and he makes them easily.

Out of this experience, we have developed a printed form (Fig. 1) which simplifies the presentation of the necessary facts, and puts them in a logical arrangement that enables the prospect to reach the right conclusion without mental labor. This

form has been worth its weight in gold as an aid in closing sales. It is not copyrighted, and anyone is at liberty to duplicate it for his own use, or it may be used as a guide in developing a form that suits the salesman better.

In order to use the form, the salesman will need to get certain basic information from the prospect. He needs to know how many engines are involved, and the make and model of each, so he can select the proper conversion units and figure the cost. He should know how much gasoline the prospect buys for these particular engines, and the cost per gallon. The information on the rate of use of fuel, and any seasonal changes in consumption, complete that part of the picture. The salesman already knows the delivered price of L. P. gas.

Helps Close Sale

In addition to providing the necessary information for the estimate, there is a second advantage to this approach. It keeps the conversation on a basis of sound sales psychology, and tends to prevent the development of sales resistance. The salesman is obviously interested in the prospect's problems, and is trying to provide him with a means of saving some money. The desire to sell is subordinated—kept in the background until the prospect sees the advantage of buying. After that desirable mental state has been reached, the salesman has only to make it possible for the prospect to buy, and the deal is complete.

Simple deals, involving only one or two engines and very simple arithmetic, may be figured out during the original interview. Where more complicated figuring is necessary, as in the case of a mixed fleet, it is generally advantageous for the salesman to list the various engines, get the fuel data and the information on the daily use of the engines, and ask for another interview after all of the details have been figured out. Some salesmen prefer to do their figuring in private on even the simplest deals. This avoids the necessity of explaining the various calculations, and the ever-present possibility of losing control of the interview during the time required to do the figuring.

Doing this work at the office makes it possible to deliver a neatly typed



WHEN YOU TURN OFF your ignition key the Century Fuelock cuts off the LP-Gas against any pressure. Operating by magnetic action this simplest and smallest of locks draws no more current than the average truck's dash light. It fits neatly on top of the Century Strainer and in this position gives positive protection because scaling copper lines are eliminated.

The newly improved Century Strainer and Fuelock combination keeps scale and other foreign matter from reaching the con-

verter's valves. It is your best insurance against leaky valves in your LP-Gas converter. Installation is easy and it requires no attention beyond an occasional cleaning. Century Carburetion for all engines includes a Strainer, Fuelock, a Converter and Carburetor.

Century LP-Gas Carburetion equipment is made with precision steel dies of light, strong and attractive aluminum alloys. These alloys cannot rust. They resist corrosion by chemicals, conduct heat efficiently.

CENTURY GAS EQUIPMENT CO.
11188 Long Beach Boulevard, Lynwood, California
Oldest Manufacturer of LP-Gas Equipment



WHAT'S WRONG WITH THIS PICTURE?



Obviously, an "out to lunch" sign on a restaurant is bad advertising. It makes good business sense to practice what you preach...to use the products you sell. In short, if you sell LP Gas, use it yourself.

As a supplier or hauler of LP Gas, *you* certainly know the advantages of your product. You know that LP Gas gives greater economy...low, low maintenance cost.

HAUL YOUR LP GAS WITH LP GAS FOR MORE PROFIT

You'll benefit two ways with LP Gas: (1) You'll enjoy a more economical, profitable and dependable operation; (2) You'll certainly be able to tell a more convincing sales story when you practice what you preach...when you prove that you're sold on LP Gas yourself. Now, for the first time, you can haul LP Gas in REO trucks specially designed for the exclusive use of LP Gas fuel. You have a choice of 100 hp. or 142 hp. models. The new REO *Gold Comet* LP Gas engine has already made trucking history. This sensational engine makes *full use* of LP Gas fuel characteristics, and has demonstrated outstanding fuel and maintenance savings on the job. For outstanding performance it's the REO *Gold Comet* LP Gas engine.

DOLLAR WISE...SALES WISE...

It's Smart To Haul Your LP Gas In Reo LP Gas Powered Trucks

See Your REO Dealer Today for Full Particulars, or write to

REO MOTORS, INC., LANSING 20, MICHIGAN



NOW AVAILABLE...

- Reo Trucks with *Gold Comet* LP Gas Engines, 100 hp. or 142 hp.
- Reo LP Gas Conversion Kit for the 331 and the 255 Reo Gasoline Engines
- Complete Reo *Gold Comet* LP Gas Engine for replacing old, worn out engines in your present trucks (any make)

NOW is the time for dealers to talk "Tractor Conversions" to their tractor friends. Do yourself a favor also and tell them how DIX LPG Carburetion can save them 5% to 10% on fuel over gasoline, increase motor life 2 to 3 times, make motor oil last 3 to 4 times longer, give smoother performance and greatly reduce maintenance costs. Ask your mechanic — he knows the difference!

Write for special illustrated catalog and other data describing how you can increase sales volume with DIX LPG Carburetion. Lick that summer slump!

LOS ANGELES 23, CALIFORNIA
Export Office—301 Clay Street
San Francisco 11—Cable FRASEN

Fig. 1

As a typical example, let us consider a case in which a large farmer operates ten Oliver Model 88 tractors. The salesman makes a note of this, and also finds out that the farmer pays 20 cents per gallon for regular grade gasoline, burns an average of three gallons per hour per tractor, works his tractors about four months each year, and averages about 10 hours per working day. The salesman knows that the price of propane, delivered in the farmer's bulk tank, is 14 cents. Giving the excuse that he wants to consult the shop foreman about the labor cost

The salesman can then open the next interview with the statement, "Mr. Farmer, the figures show that the savings on fuel alone will pay back the conversion cost during the first operating season. After that, you should save more than \$2000 on fuel cost every season as long as the tractors last—and they will last longer than they would on gasoline. You can also expect a big saving in maintenance cost. Bill Jones, down on South Highway, made the same conversion nearly three years ago, and his tractors have not yet needed an engine overhaul."

Consider the mental effect on the prospect. He is now thinking about



New International RP-195 ROADLINER. GVW rating 24,000 lbs. 133, 142 and 157-inch wheelbases.

NEW INTERNATIONAL TRUCKS

BUILT as only IH can build them

The 168 basic New International models embody the engineering principles, used in International's continuing program of truck research and development, that have resulted in hundreds of exclusive International features that have meant greater profits for truck buyers.

PROVED as only IH can prove them

The 307 features in the New International Truck line have been *proved* in the world's most advanced Truck Engineering Laboratory; *proved again* at International Harvester's 4000-acre desert Proving Ground at Phoenix, Arizona.

VALUE only IH can give you

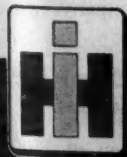
The New International Trucks offer an unmatched combination of values—the right truck for the job,

unequalled performance, lowest maintenance and operating costs, maximum driver comfort.

Now—the features you want— in America's most complete truck line

New International styling identified by the IH emblem . . . **Exactly the right power** for every job. First truck builder to offer choice of gasoline or LP gas with Underwriters' Laboratories listing in 1½-ton sizes and other models . . . **Designed by drivers for drivers.** Comfo-Vision cab with one-piece Sweep-sight windshield. New comfort and interior styling . . . **Steel-flex frames** proved best in the field . . . **Transmissions** to meet any operating requirement . . . **296 Wheelbases** ranging from 102 inches up . . . **Easy starting and greater fuel economy** . . . **Wide range of axle ratios** for all models . . . **Real steering comfort and control** . . . Sizes from ½-ton to 90,000 lbs. GVW rating. Now—See The New IH-Built, IH-Proved International Trucks at your nearest International Dealer or Branch.

INTERNATIONAL HARVESTER COMPANY • CHICAGO



International Harvester Builds McCormick Farm Equipment and Farmall Tractors... Motor Trucks... Industrial Power... Refrigerators and Freezers

Better roads mean a better America

INTERNATIONAL TRUCKS

"Standard of the Highway"



For Use . . With Every LPG Conversion

BEAM

Heavy Duty Lock-Off Valves

Here's a new automatic valve, designed to withstand the unusual road vibrations of mobile equipment, with positive operation in any position. Continuous duty coils, completely sealed off from fluid, give extra long life and allow prolonged energization with low current drain and with no harm to the coil. Available for use with both gasoline or butane.

Immediate Delivery

THE PARKDALE COMPANY

Manufacturers of
BEAM LPG PRODUCTS

2642 Lacy St., Los Angeles 31, Calif.

a saving in fuel cost of \$2000 per year, plus extra benefits from the less frequent need for expensive engine overhauls. That is certainly a more effective sales approach than just painting a picture of saving six cents per gallon.

The approach may be varied for the owner of one tractor, by telling him, "The figures show that you will save the cost of the conversion the first season, and after that the saving in fuel and maintenance will almost buy you a new tractor when this one finally wears out."

If the farmer's wife happens to be present at this interview, which frequently happens, the clincher could be something like this: "The first year's saving will pay for the conversion. After that, it will buy your wife a new range, or a new refrigerator, or an automatic clothes dryer, or almost any major appliance that she wants, every year." Mrs. Farmer will go for that in a big way. It will be pretty hard for the old man to hold out with his wife constantly plugging for modern appliances in her kitchen.

The successful salesman does not talk about small change when he tries to make a sale. He sells a result which is more important to the prospect than the cost of the equipment or item he is asked to buy. In selling L. P. gas carburetion, there is no need to hold back—the results can be most attractive if they are presented in an effective manner. The estimate sheet method is the most effective way that we have seen.



This instrument panel for a chassis dynamometer (which does not show in the picture) is used in the shop of the Moulden Supply Co.



4 CYLINDER MANIFOLDS

JOHNSON'S

High Compression

Pistons • Manifolds • Pumps

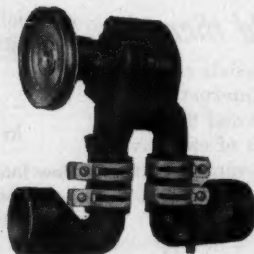
Butane Manifolds for John Deere Models "G," "A," "B," "D"

Butane Manifolds for International "H" & "M"

Butane Manifolds for Allis Chalmers "W," "WC," "WA," "WF"

Water Pumps for John Deere Models "G," "A," & "B"

• Write Today For Price Lists and Dealer Discounts



WATER PUMPS



ALUM.
DOME-HEAD PISTONS



COLD MANIFOLDS

Johnson Machine Shop

914 E. Howard St., Pontiac, Illinois

Southern Distributor:
Connally Bearing Co.,
Amarillo, Texas

Airplane Speeds Up Service For Southern Dealer

R. R. "Bobby" Moulden, owner and operator of The Moulden Supply Co., Jackson, Miss., has established an unusual record of success with L. P. gas and natural gas engine conversions during the past nine years.

As a distributor for Ensign carburetors and a complete line of L. P. gas equipment, Mr. Moulden specializes in the automotive field with offices in Tennessee, Alabama, Florida, Georgia and North and South Carolina. In addition, the Moulden company services many sub-dealers throughout the Southern states. The Ensign representative for this area is Ralph Abbott, McKinney, Texas.

A Piper Super-Cub airplane is used for quick service calls and has played an important part in the rapid growth and success of this company.

Philgas Holds School For Motor Fuel Engineers

The Philgas Division of Phillips Petroleum Co. held a refresher and

The "Know-How" you need for Installations and Conversions

Butane-Propane POWER MANUAL

Published by **BUTANE-PROPANE**
News



- *A De Luxe Edition in handy pocket-size, flexible binding. 23 Chapters, 334 Pages, Completely Illustrated.*

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2. Basic Engine Facts
3. Basic Facts of Fuel Combustion in Engines
4. Factors Affecting Operating Economy and Power
5. L.P. Gas Carburetion Systems
6. Regulating Gas Pressure and Temperature
7. Fuel Supply System, Vehicle Tanks and Equipment
8. Natural Gas Carburetion
9. Planning the L.P. Gas Installation
10. Checking the Engine's Condition
11. Raising the Compression Ratio
12. Cooling the Intake Manifold
13. Ignition Problems
14. Tractor Conversions
15. Truck and Bus Conversions
16. Passenger Car and Taxicab Conversions
17. Industrial Engine Conversions
18. Installing and Adjusting L.P. Gas Carburetion Systems
19. Manufacturers' Instructions for Adjusting L.P. Gas Carburetors
20. Lubrication of L.P. Gas Engines
21. Trouble Shooting
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23. Selling L.P. Gas Carburetion Appendix (including Definitions)

• ORDER YOUR COPY NOW!

Use this handy Order Coupon

Here is the first authoritative guide ever published for the rapidly expanding LPG power market. Basic facts of engines, fuel, and power are given in easy-to-understand language; then careful directions and clear illustrations take you step-by-step through installations, conversions, servicing . . . *everything* needed in a practical working manual for practical men.

What Readers Say

Nearly 5,000 copies of the Butane-Propane POWER MANUAL have already been sold. Readers throughout the country have paid tribute to the excellence of the work in statements such as these:

"This book answers a need our industry has had for years."—F.E.S., Bartlesville, Okla.

"It is head and shoulders above most of the normal technical books."—C.V., Cedar Rapids, Iowa.

"After reading it, I want every man in my department to have one."—P.H., Fresno, Calif.

"It is the best we have seen. We are making a present of one to each purchaser of an LPG powered REO truck."—H.D.E., Detroit, Mich.

"So far ahead of any handbook we have thus far seen as to classify it as invaluable."—A.B.F., Boise City, Okla.

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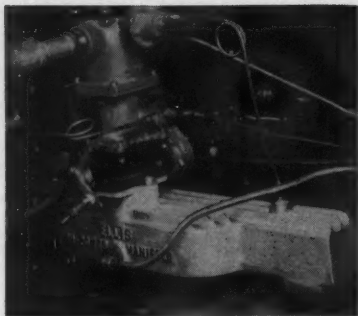
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UNIVERSAL PRODUCTS, INC.

LPG Carburetion Division
6918 Lindberg Street, Houston 17, Texas

service school for the 27 sales engineers assigned to motor fuel activities, at the company offices in Bartlesville, Oklahoma, during the week of Feb. 16-20.

Fleet Operations Discussed

Instructional activities were in charge of Floyd E. Selim, head of motor fuel sales, and included detailed reports of important fleet operations served by the company, instruction in engine principles, servicing of LPG carburetion systems, and related problems of fuels and lubricants. Laboratory demonstrations served to illustrate and make clear the various factors of power and economy. Other sessions were devoted to industry economics, storage and dispensing equipment, safety and insurance problems, and sales policy and techniques. In addition to the material presented by the Philgas and Phillips Petroleum staffs, Carl Abell, editor of "Butane-Propane News," was guest speaker, covering general service problems.

The meeting was climaxed by a buffalo barbecue at Woolaroc Lodge, at which the visiting sales engineers were guests of the Phillips Petroleum sales department.

Custom-Built Truck Tank Holds 105 Gallons of LPG

The North Texas Tank Co., of Denton, Texas, is manufacturing a new type custom-built truck LPG fuel tank. The new Nor-Tex LPG "steptank" is designed for greater fuel capacity and to shift the weight of the fuel load toward the front

axle. It replaces the conventional running board. A running board is built onto, and is an integral part of, the tank. Right or left tanks available.

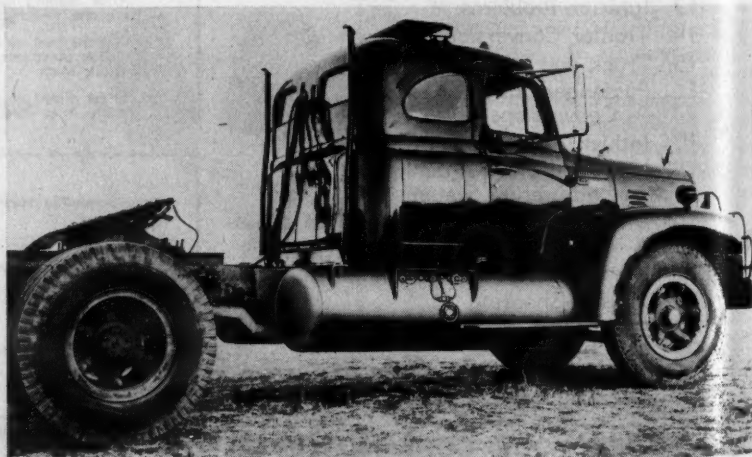
Nor-Tex LPG "steptanks" are shipped complete with mounting brackets, protected fittings and a new type relief valve. Relief valves are vented above the cab. Sizes for all types of chassis are available. The 20-in. diameter by 86-in. length "steptank" (illustrated in photo) has 105 WG capacity. All tanks under 20-in. diameter by 73-in. length have New RegO No. 7541 G recessed relief valves.

Texas Firm Buys National Carburetion Co.

Universal Products, Inc., manufacturing firm of Houston, Texas, has announced the purchase of National Carburetion Co. of Shawnee, Okla., and at the same time the creation of an LPG Division that will manufacture and distribute the National line. Headquarters are located at 6918 Lindberg, Houston.

William Hungate is president of Universal Products. Associated with him is Lee Fielder, executive vice president, and B. C. Robinson, who will head up carburetion sales and service.

Mr. Hungate has had 30 years of experience in manufacturing and engineering, and Mr. Fielder has had more than ten years' experience in LPG carburetion and its many applications. B. C. Robinson, also well known in L. P. gas circles, has had 15 years' experience in LPG carburetion.



A combination fuel tank and truck step is available now from North Texas Tank Co. for LPG-equipped automotive vehicles.

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MODERN LOW TYPE DESIGN • ACCURATE LIQUID MEASUREMENT

MODEL 766-BP

**THIS UNIT
FOR
PROFITABLE
RETAIL
INSTALLATION**



Specifications

Equipped with standard Veeder-Root computer which automatically computes the number of gallons dispensed at the price for which the computer is set. The computer reads 99% and \$9.99.

4-rotor computer, for computing in larger amounts in both gallons and dollars can be supplied at extra cost. We can also supply liter measurement, if desired.

RATE OF FLOW: Thoroughly field tested Neptune meter. Maximum capacity 30-GPM, minimum 5-GPM. Maximum working pressure 250 pounds P.S.I. Equipped with differential valve and vapor release. Built-in strainer.

DIMENSIONS AND WEIGHT: Base dimension 25 1/4 inches wide by 19 inches deep. See back of sheet for detail. Overall height 58 inches. Shipping weight approximately 375 pounds.

Note: We can furnish pump, if desired, as shown on our price list. If you do not buy the pump from us, or the motor, be sure that the one you supply is of proper size to insure that the rate of flow through the Dispenser does not exceed 30-GPM, and be sure that it has the necessary pressure differential characteristics.

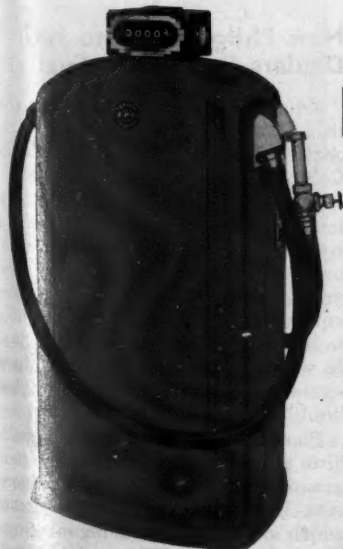
SAFE: Equipped with excessive flow valve set at 150 per cent of meter capacity, which insures shut-off in case of accident. Equipped with explosion proof UL Magnetic Station Control Switch for starting pump. All fittings 250 pounds.

HOSE: 12 feet of 3/4 inch 250 pound LPG hose with connections is furnished as standard. 1 inch hose can be supplied at extra cost, as well as additional lengths of either size. Equipped with nylon covered steel cable to control base.

ADVERTISING PANELS: Pumps are equipped with glass panels 10 1/4 inches by 4 1/4 inches, which can easily be installed in each door and upon which you can have printed either product, brand identification, or other advertising information.

MODEL 788-P

**THIS UNIT FOR
FLEET,
WHOLESALE,
INDUSTRIAL
INSTALLATION**



Specifications

Equipped with Veeder-Root register and concealed totalizer. Large, easy to read numerals indicating up to 9,999-9/10 gallons which may be reset after each delivery. Totalizer concealed in housing keeps count of total gallonage up to 1,000,000 gallons.

RATE OF FLOW: Thoroughly field tested Neptune meter. Maximum capacity 30-GPM, minimum 5-GPM. Maximum working pressure 250 pounds P.S.I. Equipped with differential valve and vapor release. Built-in strainer.

DIMENSIONS: Base dimension 25 1/4 inches wide by 19 inches deep. Overall height 50-9/16 inches.

Note: We can furnish pump if desired or you can use one of your present bulk pumps. Unit is equipped with a station control switch and pump can be connected to start from unit by means of this switch. If using your pump and motor be sure it is of proper size to insure that rate of flow through dispenser does not exceed 30-GPM.

SAFE: Equipped with excess flow valve set at 150% of meter capacity which insures shut-off in case of accident. Equipped with explosion proof UL or magnetic starter station control switch for starting pump. No conduit. 12 feet of 3/4 inch LPG hose, with connections. All fittings 3,000-pound steel.

COLOR: Standard Red. Shipping weight approximately 300 pounds.

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International Harvester Adds LPG Truck Models

With International Harvester Co.'s newly introduced R-line motor trucks, International has made available a choice of six factory built valve-in-head engines for either LPG or gasoline fuel systems. Typical of these significant additions to International's motor truck line is the model RP-195, LPG-powered Roadliner, shown with tandem-axle van. This model has a gross combination weight of 48,000 pounds and is powered by the 154 hp International Super Red Diamond 406 engine, with Underwriters' Laboratories listed LPG fuel system.

A choice of L. P. gas or gasoline fuel systems is also available in four other conventional Roadliner models, all specifically designed for tractor-trailer service. They are the medium duty model RP-165 and heavy duty RP-175, RP-185 and RP-205. With the new International R-line, L. P. gas power is available on all other models in the RP-160 through RPF-210 Series.

In addition to the International Super Red Diamond 406, International-built engines offered with LPG or gasoline fuel systems include the 108-horsepower International Silver Diamond 240; the 100-horsepower International Blue Diamond, a 269 cubic inch displacement engine; the entirely new 130-horsepower International Black Diamond 282, and two other International Super Red Diamond engines. The latter two have cubic inch displacements of 372 and 450 and develop 143 and 162 horsepower, respectively. These engines are available on conventional, cab-forward and six-wheel models with gross vehicle weight ratings from 14,000 to 45,000 pounds.

With the R-line, International trucks are newly identified by the distinctive IH emblem, replacing the Triple Diamond.

International model RP-195 Roadliner. Engine is Super Red Diamond 406, one of six LPG-powered engines now offered by IHC.

A choice of LPG, gasoline, or diesel fuel systems is also offered on extra heavy duty models with gross vehicle weight ratings up to 90,000 pounds. The LPG engines in these trucks are manufactured by Hall-Scott, with approximately 9:1 compression ratio. The available models come with 855, 935, and 1091 cu. in. displacement, and develop 305, 335 and 356 hp respectively.

Committee Is Developing New LPG Standards

Substantial progress in the development of new standards for the use of L. P. gas as a motor fuel was reported to the Technical and Standards Committee of the Liquefied Petroleum Gas Association at its Feb. 10-12 meeting in Tulsa, Okla. Subcommittees concerned with the project expect to complete their work within the next few months.

Nearly 50 members and guests attended the Tulsa session. Among the participants were A. R. Allen, Colorado deputy oil inspector; W. J. Marshall, Oklahoma state fire marshal; H. F. Browne and G. M. Kintz, U. S. Bureau of Mines, and Hugh V. Keepers, assistant manager, Fire Prevention and Engineering Bureau of Texas.

Three full days were devoted to the discussion of industry subjects by the committee and 18 subcommittees working on specific research assignments. Early approval by the National Fire Protection Association of revisions in Pamphlet 58, "Standards for the Storage and Handling of

Liquefied Petroleum Gas," recommended by LPGA is expected, it was reported at the meeting. Probable adoption of LPGA's Booklet No. 1, "Recommended Good Practice Rules for Liquefied Petroleum Gas Piping and Appliance Installations in Buildings," as an NFPA standard was also indicated.

The next committee session is scheduled for September in Montreal, Quebec, Canada. A. H. Menuet, Skelly Oil Co., Kansas City, Mo., chairman of the group, made the announcements.

Union Oil Converts 32 Vehicles to L. P. Gas

Union Oil of California recently converted 32 vehicles from gasoline to liquefied petroleum gas for use in its oil field operations near Santa Maria, Calif.

The conversion was made, the company said, because of an L. P. gas surplus in that area and because of the success in earlier conversions. At that time, Union converted about 20 semi-trailers used for "clipper" deliveries from their Los Angeles terminal.

The company now has about 50 vehicles using L. P. gas fuel out of a total fleet of 1,500. The vehicles converted at the Santa Maria fields include pick-up trucks, wire-pullers, etc.

The company listed these advantages in converting to L. P. gas: savings and availability of the fuel; gasoline carburetion is not disturbed by the installation; and gasoline can be used if L. P. gas is not available.

New Philgas Film to Help Dealers Sell Power Fuel

"Motor Fuel with a Future" is the title of a 17-minute color movie recently released by Phillips Petroleum Co. for the use of Philgas dealers.

The picture was filmed in many localities, and shows operation of equipment ranging from farm tractors to city buses, from door-to-door delivery rigs to heavy construction equipment, from stationary engines to highway trucks. It tells effectively what L. P. gas can do to reduce operating costs and increase engine life.

Planned primarily for use with farm tractor meetings, transportation groups, and tractor and truck agencies, it has widely varied interests which make it welcome for meetings of school groups, FFA and 4-H, and businessmen's organizations in farming communities.

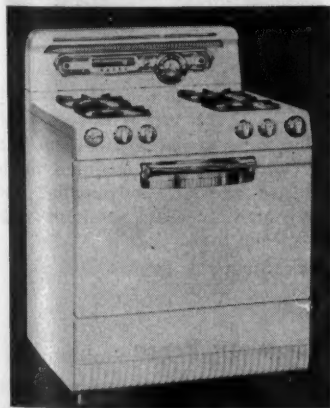
Products and Trade Publications

To secure further information on products or new publications, fill out the coupon and mail, indicating by number the items desired.

1. Domestic Range

A compact and complete gas range with capacity galore is the statement issued with the announcement of the new Roper "Space-Master," which brings to the housewife top-cooking, oven-cooking, baking and broiling facilities and will easily accommodate six 9" cakes or a 35-lb. turkey.

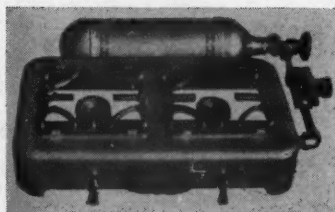
Exclusive with the Space-Master are the "Insta-Matic" clock, the precision "Melody" timer, the timed convenience outlet and a fluorescent lamp in a new "Insta-Set" panel on the range. Also an asset of the 1953 Roper range is the "Spectro-Matic" burner control, with rainbow-hue burner valves that indicate by color the degree of flame of each burner. The "Therma-Dome" broiler and "Bake-Master" oven combine to give added value.



Available in five models, the Space-Master occupies only 30 x 24 3/4 in. of floor space, yet has a large, convenient cooking top, concealed spillage trays, plus the king-sized oven and a "Serv-Hot" broiler grill. A full enamel range chassis, the new Roper range also features enamel top burners, rigid non-sag locking oven racks, chrome-finish "Spill-aways" and cooking charts on the oven door.

George D. Roper Corp.

2. Portable Stove



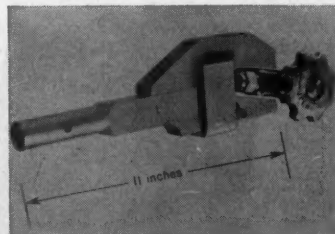
Home Gas Equipment Co., which handles a regular line of bottled gas supplies, has now put on the market a lightweight portable two-burner L. P. gas stove, suggested for campers and picnickers. The new "Camp-master," which will cook 25 full meals on one cylinder of gas, is a self-contained unit 22 in. by 17 by 6. The deluxe aluminum model weighs only six pounds less tank. The company also makes a less expensive cast iron model.

Home Gas Equipment Co.

3. Valving Wrench

Superior Valve & Fittings Co. of Pittsburgh is now manufacturing an adjustable valving wrench designed specifically for insertion of valves in cylinders.

The husky wrench can easily be used by one man for inserting or removing high pressure cylinder valves or bottled gas valves from cylinders. It is especially useful for the small repair operation where automatic valving equipment is not available.



It is necessary to attach a 1-in. steel pipe extension to the wrench, and the length of this extension governs the amount of torque applied. Superior Valve & Fitting Co.



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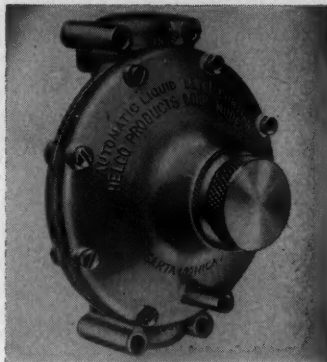
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4. Liquid Level Control Valve

A new pressure reduction valve, known as the "automatic liquid level control," has been developed by the Helco Products Corp. Primarily designed to maintain a very low and sensitive outlet pressure, the valve can be adapted to many uses in diverse types of equipment where a steady liquid level is to be maintained automatically. It takes the place of float valves wherever a closed system is desirable because of sanitary requirements or corrosive conditions.



The control operates in a range of inlet pressure from 5 lbs. psi to 260 lbs. psi and can be set to maintain a steady water level in a range from 5 in. to 20 in. According to the manufacturer, the Helco automatic liquid level control has been tested in actual field use for over a year and has operated consistently without service trouble.

Helco Products Corp.

5. Unloading Rack

Black, Sivalls & Bryson, Inc., have recently introduced a new tower rack which is designed to provide maximum safety for unloading L. P. gas from tank cars. The manufacturer claims that the rack minimizes the danger of fire, provides non-skid safety and convenience and eliminates dangerous reaching and loss of balance.



The racks are of all-steel construction with aluminum painted finish, and are pre-cut, pre-punched and ready for immediate assembly without special tools.

Black, Sivalls & Bryson, Inc.

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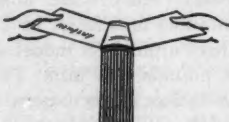
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Plexon plastic covered wire and instructions supplied with each binder. Replaces elastic cord for permanent binding.

6. Domestic Range

The first line of gas cooking ranges to bear the RCA monogram is being introduced this year by the RCA Estate Appliance Corp., RCA subsidiary recently formed to take over manufacture of the Estate line of appliances.

Striking color accents have been added to the six models designed for city and bottled gas—golden nameplate plus red RCA emblem, new royal blue grates on the cooking top, white burner bowls designed to catch spillovers, royal blue oven in-



8. Low-Priced Home Incinerator

The "Economy Burnall" home incinerator just introduced by the Comstock-Castle Stove Co. operates on all gases, requires a space only a foot and a half square, and needs emptying only once a month.

A feature of the unit, according to the manufacturer, is the "Whale-Fluke" burner which spreads the gas beneath and through the grate, quickly drying all garbage and rubbish and reducing it to a fine ash. *Comstock-Castle Stove Co.*

9. Domestic Incinerator

"Hungry Dragon" is the picturesque name given by Skuttle Manufacturing Co. to its new gas-fired home incinerator. Described as "the ideal disposal system for all burnable rubbish, including garbage," the moderate sized incinerator is said to have adequate capacity for a family as large as six persons.

Ruggedly made and AGA-approved, the device is recommended for continuous low-flame operation. It is easily installed and may be hung

teriors, and, gray metalescent finish on drawer interiors and pedestal base. Deluxe models feature an aquamarine blue clock face, while low-end models have a blue "Minute Minder" with gold escutcheon. Chrome-ring drip guards are included on deluxe models.

The line is headed by the fully automatic CP Model 5341. It includes a drawer-type broiler below the baking oven, the "Bar-B-Kewer" meat oven, and the "Hide-Away Grid-All," under which is a "super-giant" unit for kettles up to 25-quart size.

RCA Estate Appliance Corp.



7. Appliance Carrier

A new sled-type appliance carrier designed for easy moving in tight corners, narrow stairways, halls and entrances is offered by the Milwaukee Truck & Caster Corp.

Constructed of tubular steel with round sliding edges, the new carrier measures only 6 in. in depth and stands 57 in. high to permit easy breakover and improved load control. It is equipped with solid rubber wheels and has a load capacity of 750 lbs. Several models are available.

Milwaukee Truck & Caster Corp.

THIS PUMP IS EQUIPPED
WITH SELF-ADJUSTING
PACKING. NO LUBRICATION
OR SERVICING REQUIRED.
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THIS PLATE, fastened to all late model Smith Butane-Propane Pumps, is your assurance of long, trouble-free service. The Self-Adjusting Packing is one of our exclusive, patented features and has been supplied with all models of Smith pumps during the past five years. Manufactured in our own factory exclusively for use in these pumps, it has proven so successful that we do not offer ordinary packing as an alternate.

FIVE YEARS of field experience covering thousands of pumps in every possible type of service has proven that in most cases this packing holds up for the life of the pump, without requiring adjustment, lubrication, replacement, or other attention of any kind, and without leaks. However, for the benefit of the 5 to 10% of our customers who do find it necessary to change the packing at some time, it has been especially designed for EASY field replacement. The pump does not have to be removed from the piping, and no special tools are required. All packing parts are attached to the shaft and come out as a unit. Replacement is made from the shaft end of the pump so no other parts or gears need be touched. The pumping end of the pump is not even opened.

IT IS EASIER to make this replacement than to repack ordinary pumps, and the exchange cost usually amounts to only a few dollars. Complete information on Self-Adjusting Packing, including the simple instructions for replacing it, is contained in our Service Instruction Sheet K-2, available upon request at any time.



Write for catalog K-52 describing all Smith models & their application range.

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THE EDITORS

BUTANE-PROPANE News
198 South Alvarado Street
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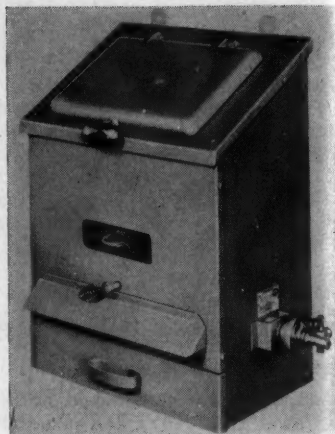
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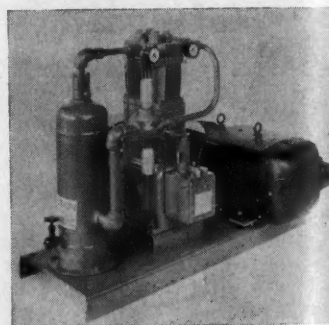
ADDRESS



on the chimney or mounted on a stand on the basement floor. A flue draft of 0.03 in. is sufficient. According to the manufacturer, it is priced to reach the popular market.
Skuttle Manufacturing Co.

10. Compressor

Liquid can't get into the new compressor now being marketed by Corken's Inc., the manufacturer announces. A condensate trap with double stainless steel float provides positive cut-off, protecting the compressor from this most frequent kind of damage.



The trap is also available separately to bulk plant operators, and will protect old compressors, regardless of make.

Changes in the new Corken compressor, besides the trap, include a new malleable iron connecting rod, new design crosshead, and improved design wrist-pin.

The compressors continue to feature proportioned lubrication — a tablespoon of oil serves for unloading a tank car, according to the company. The design of the compressor makes it impossible for crankcase oil to get into the product.

Corken's Inc.



11. Combination Range-Heater

Phillips & Buttorff Manufacturing Co. now has in production a complete line of combination gas ranges and heaters. All models are 38 in. wide and have deluxe back guards and the same welded one-piece all-porcelain chassis and other features as standard "Enterprise" ranges.

In addition to the gas cooking range, these "bungalow" models offer a choice of built-in gas, coal-wood, or oil heating sections. The gas heating sections have 30,000 Btu input and are equipped with thermostats and 100% safety pilots.

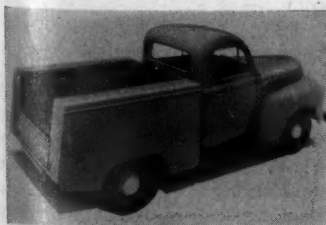
Phillips & Buttorff Manufacturing Co.

12. Service Truck and Side Boxes

New features and improvements in the "Service-Master" truck body have been announced by McCabe-Powers Auto Body Co.

These include increased capacity of lower rear compartments; redesigned double-panel doors; rearrangement of parts bins and shelves, which are standard equipment; and full-length, hinged covers over the parts bins to provide additional shelf space. The 43½-in.-wide loading area is said to be larger than a pickup truck body.

Exposed sections of the all-steel body are sanded and sealed to assure a smooth exterior finish. Edges on doors, shelves, and bins are safety rolled to prevent cuts, and snagging



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of clothing. Compartment doors are fitted with recessed, slam-action catches and cylinder locks, keyed alike.

The bodies are made to fit ½-, ¾-, 1-, and 1½-ton chassis. They are available from distributors either for shipment, or painted and installed on the user's truck chassis. Optional equipment includes overhead rack with adjustable ladder and material brackets, telescopic roof and endgate enclosure, side-mounted, pipe-carrying brackets, vise bracket with pipe support, and combination rear bumper and step.

Also available are the company's newly designed side boxes, made in 74-in. and 84-in. lengths to fit ½- and ¾-ton pickup trucks, respectively. Standard equipment includes parts bins with removable dividers. The compartments, which are shipped in pairs, are painted inside and out, finished in medium-dark green, baked-on synthetic enamel that resists rust and chipping. Of double-panel construction, they are described as completely weathertight.

The slam action catches are recessed for safety and appearance, and the cylinder locks, provided on

each door, are keyed alike for convenience. An overhead rack with adjustable ladder brackets is optional equipment.

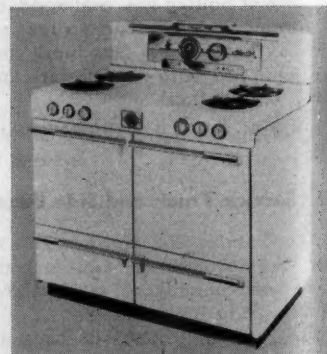
According to the manufacturer, the compartments can be mounted in a few minutes, using only a drill and wrench.

McCabe-Powers Auto Body Co.

13. New Range Features

Magic Chef's 1953 deluxe domestic ranges combine minor design alterations with several exclusive new features. No price or design changes have been made in the smaller and lower-priced models, but the deluxe Model 79L, semi-deluxe Model 78, and two new double-oven units, all have three new features.

The "Magic Oven-Eye," a small jewel in the control panel, glows red when the oven reaches the set heat and continues as long as the oven remains at desired heat, thus helping guard against baking failures due to incorrect temperature.



An ultraviolet "Magic-Aire" deodorizing lamp is built into the control panel, also. By emitting pure ozone, the "Magic-Aire" sweetens and freshens the kitchen air and helps banish cooking odors. Switch-operated, it gives off a soft, blue glow, which can be used as a night light.

Finally, the new "Magic-Ray" swing-out broiler is made of a special imported chrome alloy which, it is claimed, becomes incandescent in less than a minute at broiler temperature.

Magic Chef, Inc.

14. "Jet" Torch

Two new LPG jet superheating torches are being produced by Weldit, Inc. Designed to meet such applications as weed burning, asphalt road repair, railroad right-of-way

INCREASE YOUR PROFITS WITH THE PHILGAS*

5-WAY PROFIT PLAN!

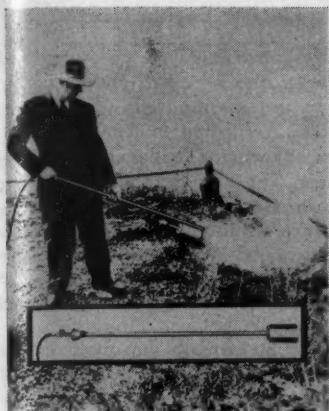


- 1. High Quality Product**
- 2. Dependable Supply**
- 3. Experienced Engineering**
- 4. Effective Marketing Help**
- 5. Operational Assistance**

*Philgas is the Phillips Petroleum Company trademark for its high-quality propane-butane LP-Gas or bottled gas.

PHILLIPS PETROLEUM COMPANY
Sales Department • Bartlesville, Oklahoma

Offices located in Amarillo, Tex., Atlanta, Ga., Chicago, Ill., Denver, Colo., Des Moines, Ia., Pontiac, Mich., Indianapolis, Ind., Kansas City, Mo., Milwaukee, Wis., Minneapolis, Minn., New York, N. Y., Omaha, Neb., Raleigh, N. C., St. Louis, Mo., Tulsa, Okla., Wichita, Kan.



maintenance, tar melting, preheating, thawing, bending, and descaling, these torches are fabricated of seamless steel tubing and built for rugged service.

The Weldit B-1 superheating torch is a lightweight model, weighing 3 lbs., length 40 1/4 in. This torch operates from any standard propane tank at tank pressure. Fuel consumption is 15 lbs. per hour, and heat production is 391,995 Btu per hour.

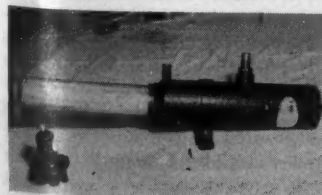
The Weldit B-2 superheating torch, the heavy duty model, weighs 5 1/4 lbs., length 46 in. It operates on liquid gas by inverting the tank or using a tank equipped with dip tube. It consumes 23 lbs. of propane or butane per hour, and produces over 600,000 Btu per hour.

Weldit, Inc.

15. LPG Engine Preheater

Since last August, when it went into mass production, the "Blufume" bottle gas engine preheater of the L. A. Hanka Manufacturing Co. has been used in the northern United States, Canada, and Alaska. These units preheat the coolant in the engine head and block, assuring warm starts and immediate positive lubrication. They operate on the thermosiphon principle of continuous circulation, and keep the water in the engine block above 100° F at outside temperatures down to 30° below zero.

The "Blufume" comes in four sizes, now in use on equipment rang-



ing from a small air compressor to a 6-yard power shovel. Units are available with or without 100% safety shutoff, and with manual, electric, or dash-controlled electric ignition. A thermostatically controlled model is expected to be on the market this fall.

Made of all chrome, the heater has noncorrosive brass burner ports. The Barber "Multi-Ribbon" port burner is used for wind resistance—Blu-Flames have worked without fail at 44° below zero and in the face of 40 mph winds, the manufacturer reports. The burners are said to have

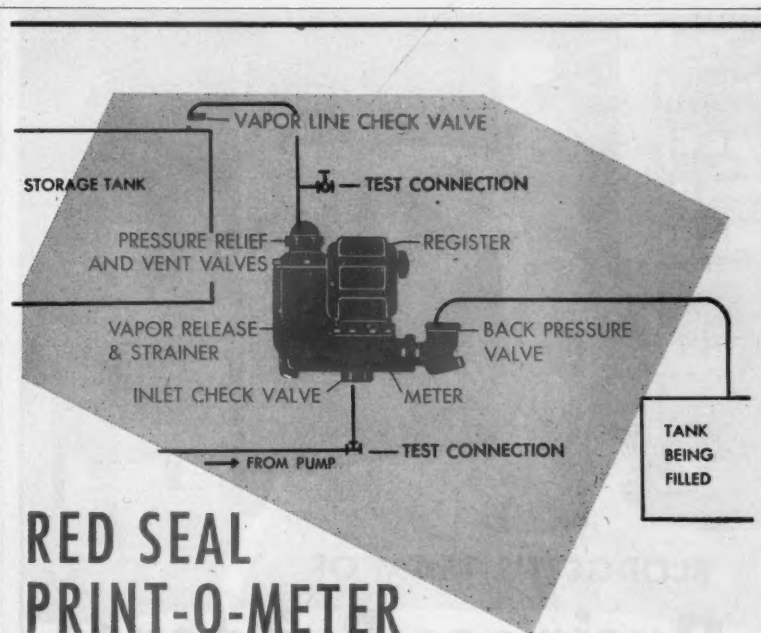
ample reservoir space to prevent clogging by rust particles.

According to Mr. Hanka, installation by a mechanic takes less than an hour, and the bottled gas used costs approximately 1 cent per hour of operation. The heater will operate in altitudes up to 12,000 feet without adjustment of the regulator.

L. A. Hanka Manufacturing Co.

16. Gas Engine Heater

Designed to overcome the difficulty of cold-weather operation is the Universal engine heater, a standby pre-



RED SEAL PRINT-O-METER

The Complete Truck Metering System

This 1 1/4" Red Seal LP-gas meter gives you a complete, approved metering system in one unit. All accessories are provided—all but one built right into the meter. Nothing extra to buy—no extra connections—less chance for leaks—fewer maintenance problems.

Available in two models: a simple direct-reading meter, and the popular Print-O-Meter. Safe at LP-gas working pressures. Capacities 5 to 30 gpm. Larger meter also available. Ask for full details today—and ask for Red Seals on your new trucks.

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NEPTUNE



LP-GAS

METERS

FOR TANK

TRUCKS

BULK

PLANTS

AND

VEHICLE

REFUELING

38A

heater that can be used continuously or for short warm-up periods. The one propane-burning model can be installed in any convenient location in any car, truck, or tractor engine. Ignition is manual. All parts are replaceable. Custom designs will also be built to specifications.

According to the manufacturer, the heater, which has been endorsed by the Montana state highway patrol supervisor and by several fleet operators, operates as follows: Cold water is drawn from the bottom of the

engine block, heated in a separate chamber and injected into the top of the block with a forced, positive pulsation action, due to Universal's thermo-siphon pulsation valve, which is used on all models. The flame is adjustable by means of a shut-off valve.

Use of the heater does not eliminate the need for antifreeze, and the manufacturer recommends use of reliable antifreeze and anti-rust solutions along with it.

Universal Engine Heater Co.

17. Electric Engine Heater

Now marketed in 26 states and Alaska, the Freeman engine heater is in use in hundreds of Northern fleets. According to Kenneth Tvedten, advertising manager of the producer, The Five Star Manufacturing Co., of Grand Forks, N. D., the owners are enthusiastic about the maintenance and operational savings, due to eliminating cold-start troubles by electrical heating of the oil and water.

The Freeman headbolt engine heater, which may also be installed through the frost plug, is a permanent part of the car and requires no servicing. It does not operate except when plugged into any 110-120 volt AC or DC outlet. The plug-in connection extends through the grille, making it unnecessary to lift the vehicle hood to operate it. Two-thirds of a kilowatt-hour is used, on the average, to raise engine temperature to 60° F. According to the manufacturer, although approximately 60 minutes is required for the warming operation, the heater can be left on all night without damage to itself or to the engine. Temperature in that case will reach 110° to 120°. A major feature is the 650-watt heating element, which extends into the water jacket.

For liquid-cooled engines, the manufacturer has the Freeman external type engine heater, which includes two 650-watt heaters and operates on 115 volts AC or DC current. This requires a warming period of 30 minutes or more, depending on the outside temperature.

Five Star Manufacturing Co.

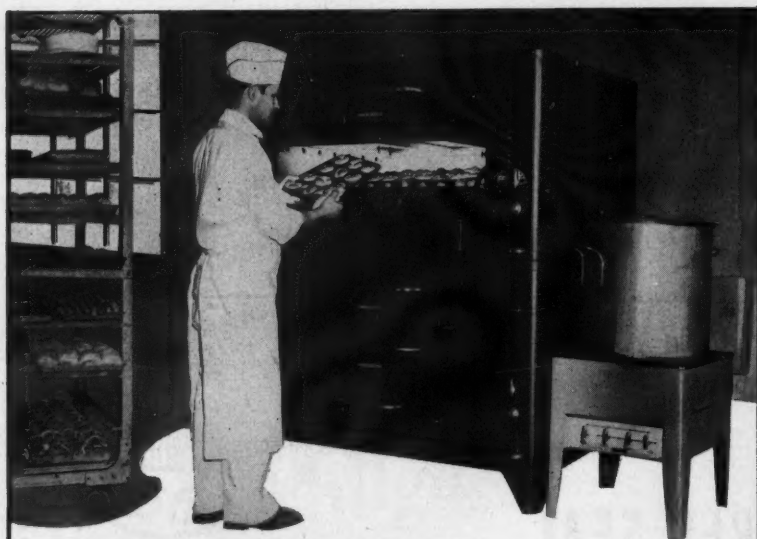
Product Information

18. Aboveground Tanks

To meet the increasing need for larger aboveground L. P. gas storage Scaife Co. has added two sizes of new ASME tanks to its line of "Fuel-Pack" stationary tanks.

Manufactured to the ASME code and carrying Underwriters' approval, the new aboveground tanks will provide L. P. gas storage for industrial, commercial and domestic users. They also will enable builders of multi-unit dwellings and larger structures to take advantage of L. P. gas service in areas not now being served.

Several new features have been incorporated in the design of these tanks. A lock-lid cover is fitted to the sturdy protection ring which houses



BLODGETT'S TEAM OF Business Builders!

Every Blodgett Oven and Pyrastove you sell means delivering more tanks of L.P. gas to your customer. Statistics show that the average baker operates a Blodgett No. 982 approximately seven hours a day and will use approximately 60% of its rated input of 100,000 B.T.u.'s per hour—six days a week. Show your customer how to take full advantage of modern baking methods by selecting a sectionally fired Blodgett Oven. You'll find it will result in customer satisfaction . . . and more gas deliveries to you.

Blodgett's rocket fast PYRASTOVE is ideal for stock pot work with its great flexibility and convenient work height. Rated at 100,000 B.T.u.



**GAS COOKING OFFERS
PROOF OF PROFITS**

The G. S.

BLODGETT

Co. Inc.

50 LAKESIDE AVENUE

BURLINGTON, VERMONT

IN CANADA, GARLAND-BLODGETT, LTD., 2256 EGLINGTON WEST, TORONTO, ONTARIO

the operating valves and accessories. With the hook-type cover hinge, the lid is held upright during servicing. Fuel level inspection can be made without unlocking or opening the curb box. Tank supports are welded integrally to the high-strength steel of the tank.

Scaife Co.

19. Empire Offers Floor Furnaces

Empire Stove Co., Belleville, Ill., announces a complete new line of gas floor furnaces which are available in four models: 25,000, 35,000, 50,000 and 70,000 Btu input for all gases. The models are of the shallow type with the new Empire vertical "thrifty-matic" burners.

20. New Recessed Heating Units

Empire Stove also has a complete new line of recessed heating units which are available in 25,000 Btu input single wall and 50,000 Btu input dual wall models for L. P. gases. The new models feature an added warm air grill which increases the amount of radiant heat.

Empire Stove Co.

Newly Published

21. "Carbonitriding" Furnaces

A four-page bulletin describing the new Lindberg gas fired vertical radiant tube furnace has been released by the Lindberg Engineering Co. It contains a listing of design and application features, photographs and diagrams of the new furnace which may be used for carbonitriding, carburizing, annealing, carbon restoration and other hardening jobs.

Lindberg Engineering Co.

22. Truck Scale

An eight-page, two-color folder (Form No. 678) just released, illustrates and describes the complete line of modern, heavy duty Howe four-section, straight lever, ball-bearing motor truck scales for weighing big truck and trailer loads.

The folder reviews and illustrates many exclusive Howe features including ball-protected bearings, "inside" antifriction plates and other construction details. Installation photographs are shown.

Complete specifications and pit dimensions are listed. These scales

have a capacity of 50 tons. Platform sizes are 45, 50, or 60 feet long by 10 feet wide.

The folder also describes the complete line of weight indication offered with these scales, including: the full capacity beam, type recording beam, balance indicator, the exclusive Model 77-D and cabinet "weightographs," the tape-drive cabinet dials and the Howe teleprint electronic remote weight recorder.


The folder is available on request.
Howe Scale Co.

23. New Bulletin Describes Roth LPG Steam Vaporizers

A bulletin has been prepared by the Roth Manufacturing Co. on the company's new "Sure-Gas" LPG Steam Vaporizer.

The Sure-Gas vaporizer has been designed for use in industrial plants and utilities using L. P. gas for standby, peak shaving, or continuous service.

Included in the two-page bulletin are specifications, installation data,



Carter

*** LP-Gas**

Carter produces high quality Propane and Butane for both industrial and domestic uses. Our service and products are unexcelled. You can depend on Carter.

Wholesale Only

THE CARTER OIL COMPANY
TULSA, OKLAHOMA
P. O. Box 801 Phone 2-6101

model numbers with gph capacities, and a cut-away scale drawing showing the unit's construction.

Roth Manufacturing Co.

24. Specifications Sheets For Flow, Liquid Level Meters

Minneapolis-Honeywell Regulator Co. has just issued a set of seven new specification sheets covering their flow meter line. Two-page Specification Sheet No. 241 and four-page No. 242 cover electric evenly graduated

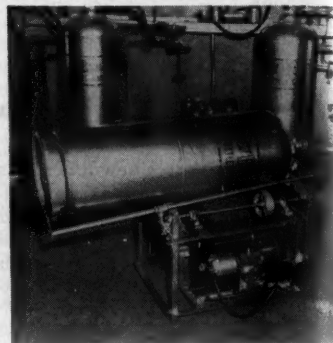
flow meter bodies and mechanical evenly graduated flow meter bodies, respectively.

Four-page No. 243 covers meter bodies for square root electric flow and liquid level meters (inductance bridge transmitters). Inductance bridge receiver meters are covered in two-page Specification Sheet 244; with pneumatic control, No. 245; mercury manometer type, No. 246; pneumatic control mercury manometer type, No. 247.

Minneapolis-Honeywell Regulator Co.

25. Machine Stencils Cylinder In 2½ Seconds For 1¢ Each

A new method of stenciling cylinders that costs just over a penny per cylinder and does the work in less



than 2½ seconds has been used by the Lewiston (Maine) Bottled Gas Co. for the past three years.

The stenciling machine, called the "Print-O-Matic," is being manufactured by Romeo Herow of Lewiston, who reports, "It requires 2 2/5 seconds to make a complete cycle, printing very neat trade names on two sides of the cylinder and using very little paint. One quart of paint will do from 1100 to 1500 cylinders, while spraying requires a quart of paint for 95 cylinders. Savings on paint alone pays for the cost of the machine in no time. In addition, there is a considerable saving on labor."

After experimenting with many different kinds of paint and paste, the Lewiston group reached the conclusion that paste produces more beautiful results, but that paint is preferable because it costs only a quarter as much and requires less aluminum paint to cover it when the cylinders are repainted.

R. Herow

McClellan Sells Kansas Business To Wissing's, Inc.

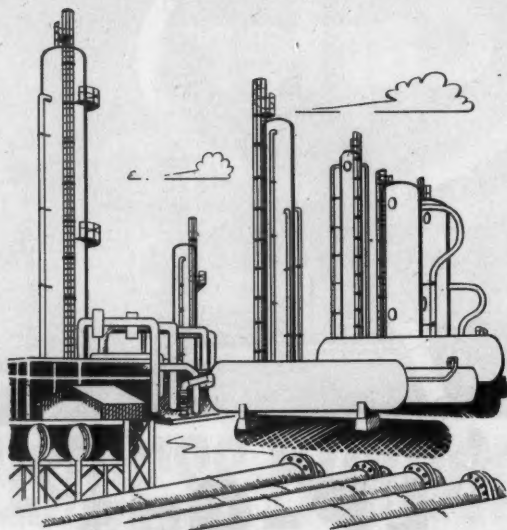
G. M. McClellan Propane Gas Service, Salina, Kan., has sold its complete propane gas operation, including bulk plant, trucks, service trucks, rental tanks and bottles, as well as merchandise stock to Wissing's Metered Gas Inc., of the same city.

McClellan's made this transaction so that the firm could devote its time to the company's anhydrous ammonia fertilizer and equipment business.

Wissing's is a branch of the Wissing farm implement and household appliance firm.

CITIES SERVICE

LIQUEFIED PETROLEUM GAS



... in L. P. gas also Cities Service means Good Service

- A DEPENDABLE SOURCE
- UNIFORM PRODUCTS
- A CAPABLE SUPPLIER
- TWENTY-FIVE YEARS EXPERIENCE

CITIES SERVICE OIL CO.

DELAWARE

Bartlesville, Okla.

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OTHER SALES OFFICES

Cleveland • St. Paul • Kansas City • Toronto



Answers To Problems Third Safety Meeting

These answers to problems presented on page 69 of the March issue of **BUTANE-PROPANE News** are based on the experience and judgment of a small group of individuals. Since judgment is based on knowledge plus experience, and no two people have had the same range of experiences, you may disagree with some of these answers. You are perfectly at liberty to do so.

The real purpose of the problems is to stimulate analytical thought, which is one of the necessary steps in the development of the judgment necessary to the intelligent handling of emergencies.

Problem 1. The plant operator should have made a check of all valves before leaving the plant on Saturday. The leaking valve could have been capped in some manner until such time as repairs could be made.

Hazard are: (1) Flash fire originating at the street, and possibly injuring people passing by; (2) pocketing of gas in combustible mixture in a location where, if ignition took place, it might cause an explosion or start a fire damaging the property of the company, or of others, or possibly injure employees or other people. No one insurance policy covers all of these hazards. Possible claims might not all be covered unless the business is most thoroughly insured, but the owner of the business would still be liable.

The employee discovering the leak should: (1) Call the fire department to stand by, and disperse the escaping gas with a stream of high pressure water; (2) Cap the outlet if possible; (3) Call the boss. In case the leak had been bad, his first step should have been to have the police prevent all traffic movement in the vicinity, and see that all possible sources of ignition in the immediate neighborhood were extinguished.

What should be done about the plant operator would depend on his previous record for carefulness in performing his duties. No employee with frequent lapses from safety precautions should be allowed to work with L. P. gas. He should at least be made to realize the seriousness of the situation, and proper measures should be taken to assure that there would be no repetition.

Problem 2. Steps to be taken: (1) Turn off the valve at the tank; (2)

Turn off the valve where the gas line enters the house; (3) See that the fire and police departments are called at once, and all sources of ignition in the danger zone are extinguished; (4) Try to keep traffic out of the danger zone until the fire and police departments can take over and make things safe.

The driver is entitled to compensation even though his accident resulted from his own carelessness. The owner of the business would be liable for other accidents resulting from this escape of fuel, as it was caused by his employee while on duty.

If the tank had been equipped in accordance with Pamphlet 58, there would have been a check valve in the filler line, and the accident could have occurred only if the check valve failed to work, which is highly unlikely.

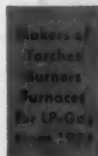
No non-code tank should ever be filled with L. P. gas.

Problem 3. Logically, the responsibility should rest with the customer, but the fact that his lack of care contributed to the damage would not relieve the L. P. gas distributor from responsibility for a claim of someone other than the customer, if such

4 Ways RANSOME FURNACES increase your PROFIT POSSIBILITIES

- 1 **MANY USES, MANY PROSPECTS.** These furnaces melt lead, babbitt, asphalt, paraffine and glue without mess, fuss or clogging. Enable plumbers, sheetmetal workers, mechanics, builders, ranchers, etc. to do jobs faster, easier and at less cost.
- 2 **SELL YEAR-ROUND.** Excellent fill-ins for salesmen between house calls; boost sales during slack periods.
- 3 **INCREASE LP-GAS PROFITS.** Ransome furnaces use LP-Gas in small containers. Thus, bring you prices 33 1/3-50% above bulk. Customers usually pick up containers, saving you delivery costs.
- 4 **BUILD APPLIANCE BUSINESS.** A man who uses LP-Gas in his business soon sees how safe and inexpensive it is, becomes a top-notch prospect for home or summer cottage use.

Stock the full line now! Write today for price lists, discounts, big 20-page catalog.



RANSOME COMPANY

Designing & Constructing Engineers

ROOM 109, 4030 HOLLIS ST. EMERYVILLE, CALIFORNIA



RANSOME Utility Furnace Model P-32. Handles 6" to 10" lead pots. Melts 25 lbs. lead in 15 minutes from a cold start. 2 sizes: 2 1/2 or 5 gal.

FURNACE PROSPECTS ARE
TORCH PROSPECTS, TOO
RANSOME makes torches for
heavy and medium-duty
heating, utility work, soldering
and more.

Ransome

other person should suffer injury or damage.

Practically, no fuel supply should ever be connected to any piping without first making sure that: (1) it had been installed according to Pamphlet 58 and any legal regulations which might apply, and (2) that there are no leaks, open valves, or uncapped outlets through which gas might escape.

Problem 4. We should never relax our care in respect to safety practices. It is just plain good business to avoid all possible fires and acci-

dents. Our industry is more vulnerable to harm from adverse news reports than either the electric or the utility gas industries, for a reason that any public relations man will readily understand. Suppose that on the same day, in the same locality, three fires should occur, all equally bad, one caused by defective electric wiring, one by escaping city gas, and one by escaping L. P. gas. Reports of all three would probably go out over the wire services to the newspapers. City editors all over the country are selecting their news for pub-

lication. The three dispatches have approximately the same potential reader interest. The local electric companies, and the local utility gas companies, who advertise heavily in the papers, would object if the editor should "play up" a report of a fire which might reflect on their industry, and thereby affect their business. There are no local LPG distributors using advertising space in the city papers. They cannot afford to pay the rates for city circulation that does them no good, yet the city papers are widely read by rural L. P. gas prospects. So the editor passes up the dispatches about the fires which originated from electrical or city gas causes, and prints the story of the fire that resulted from L. P. gas. There is no malice intended, but we have no effective way of preventing its occurrence—the business department of the paper is not on the editor's neck to protect the interests of people who do not advertise.

In our industry, the only way to prevent widespread publicity on accidents is to prevent accidents.

Problem 5. All valves on the stove should be closed before turning on the fuel at the tank. There should also be a valve at the outlet that supplies the range, and this should have been kept closed until the time came to light the pilots in the range.

Upon detecting escaping gas, you should immediately turn off the valves at the range, eliminate any sources of ignition in the kitchen and adjacent rooms, warn the family against striking matches or turning any electric switches, close all doors between kitchen and other rooms, and open all kitchen windows and the outside door to ventilate the place thoroughly. Do not turn on an electric fan—its motor is probably not vapor proof and the brushes might spark. Take plenty of time to ventilate the kitchen thoroughly, stirring up the air behind the range and in other possible "dead spots" by fanning with a magazine, folded newspaper, or some other object that will create circulation. After you are sure that all danger is removed, light the pilots or burners, and complete the tests and adjustments.

Your company's compensation insurance protects you while you are working at your assigned duties. Regarding other liability, the court would be quite likely to find that such an accident was due to contributory negligence on the part of the man making the installation, and the dealer would be liable.

FOR TOP HEATING EFFICIENCY

BURNERS BY JOHNSON

A BURNER FOR EVERY NEED

When you need dependable burners for steam tables, urns, vats, ovens, or any other type of equipment requiring burners look to JOHNSON for the right burner for the job. JOHNSON has specialized in industrial gas burning equipment for more than half a century.

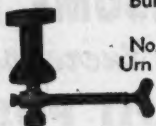
Every JOHNSON burner is properly designed to assure perfect combustion and highest flame temperature, resulting in more heat for the dollar.

Consult the complete Johnson Catalog for the full Johnson Line of Burners, Torches, Valves, Furnaces and Blowers.

Johnson Gas Appliance Company
597 E Avenue N.W., Cedar Rapids, Iowa



Drilled Pipe Burner



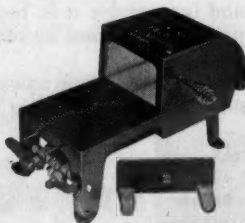
No. 29A Urn Burner



No. 60 BCE Concentric Ring Burner



No. 20X Cross Type Burner



No. 101 Bench Furnace

JOHNSON

LP-GAS EQUIPMENT

The Trade



A. C. Miller (right), president of Kresky Manufacturing Co., signs sales agreement and takes over ownership of Ward Heater Co. as Russell Jarrett, vice president of Ward, looks on.

Kresky Manufacturing Co., Petaluma, Calif., has purchased the Ward Heater Co. of Los Angeles, formerly operated by the Estate Heatrola Division of the Noma Electric Corp. of New York City, according to an announcement by C. A. Miller, president of Kresky.

The union brings together two of the oldest floor furnace manufacturers in the country, as the Kresky Manufacturing Co. has been a leader in the oil floor furnace field since 1910, while the Ward Heater Co. has been manufacturing gas floor furnaces since 1909.

Mr. Miller states that the Ward Heater Co. will operate independently and the pattern of distribution for both firms will not be changed. Plans are now being formulated for expansion of distribution and sales of both firms. The Ward Company will continue to be managed by its present officers, Russell Jarrett, vice president and general manager; William H. Hoffman, general sales manager, and James J. Sherlock, treasurer.

L. A. Brand, vice president, Empire Stove Co., Belleville, Ill., has announced the appointment of Harry M. Hadley as branch manager in the western Pennsylvania-northern Ohio territory, with headquarters in Marietta, Ohio.

Recently, Mr. Hadley was East Coast warm air heating specialist for The Coleman Co.

Appointment of four new sales representatives is announced by Harry C. Gurney, sales manager of the Janitrol domestic-commercial space heating equipment division of Surface Combustion Corp.

Working under the supervision of K. G. Hull at the New York headquarters, 225 Broadway, will be Thomas J. Burke, sales representative in the New York territory, and George C. Clayton, assigned to the New Jersey area. Mr. Burke was previously associated with John C. Fullerton, Bittner Co., and Consoli-

dated Edison Co. Mr. Clayton, a former salesman for the New Jersey Natural Gas Co., is a charter member of the Buffalo, N. Y., Junior Chamber of Commerce.

The new Janitrol sales representative in the Pittsburgh, Pa., area, Richard L. Deeley, was formerly connected with the Bailey Farrell Co. there, and served several years in the Marine Corps. He will work under District Manager L. J. Monahan and will maintain an office at 601 Grant Building, Pittsburgh.

Donald A. Allbert, who will sell

Make your pick-up truck a service truck



PAINTED...READY TO INSTALL

SERVICE-TWINS

TOOL AND MATERIAL COMPARTMENTS

It's easy to install Service-Twins. You need only a wrench and drill to do the job. No painting is required. Service-Twins are finished in baked-on synthetic enamel, that's rust and chip-resistant. Color is medium-dark green.

Built-in parts bins are standard equipment. Doors have slam-action catches with cylinder locks, keyed alike. Overhead rack with material brackets, shown at right, is optional.

Service-Twins are available in 74" and 84" lengths, for $\frac{1}{2}$ and $\frac{3}{4}$ ton pick-up trucks.



McCABE-POWERS AUTO BODY COMPANY

5900 NO. BROADWAY • ST. LOUIS 15, MO.

Please send me complete details on Service-Twins

Name

Company

Address

City Zone State

BP

space heating equipment in the Iowa-Nebraska area, will headquarter at 905-6 Redick Tower, Omaha, Neb. Formerly territory salesman for Contractors Heating and Supply Co., Mr. Allbert made heating installations all over the U. S. and in foreign countries during his four-year service in the U. S. Navy.

George M. Gillen, manager of marketing service for *Lukens Steel Co.*, Coatesville, Pa., died suddenly on Jan. 7 following a heart attack. He was 49.

C. S. Davis, Jr., president of *Norge Heat Division, Borg-Warner Corp.*, announced the appointment of Lyle L. Groff as assistant sales manager. Mr. Groff most recently was manager of service parts for Norge Heat.

Mr. Groff has served the company for over five years in the capacities of sales engineer, assistant service manager and regional sales manager in the Mississippi Valley area.

Charles Price, formerly an assistant in the service parts department, has been promoted to service parts supervisor.



Ross E. Roberts

Ross E. Roberts has been appointed vice president of *Pyrofax Gas Company*, a Division of *Union Carbide and Carbon Corporation*, Walter Naumer, president, announced recently.

Mr. Roberts has been with Union Carbide since 1926, serving as assistant sales manager and later as sales manager. He became manager of the Pyrofax Gas Co. in 1950. The company supplies bottled gas service to homes, farms, and industrial installations throughout the entire eastern half of the United States and in Canada through its affiliate, the Pyrofax Gas Division of Carbide and Carbon Chemicals, Limited, Toronto.

Mr. Roberts is a member of the Liquified Petroleum Gas Association and is active on various industry committees.



Chester A. Siver

Black, Sivalis & Bryson, Inc., Kansas City, announces the appointment of Chester A. Siver as general manager of engineering. Mr. Siver will have company-wide supervision of engineering activities, including engineering staffs in Kansas City, Oklahoma City and Tulsa.

Mr. Siver will headquarter at the Kansas City general offices. He will be assisted by W. W. Pyeatt, administrative assistant; C. W. Hayes, chief engineer, Oklahoma City; Harold Manual, chief engineer, Kansas City; and Al Hanssen, chief engineer, Tulsa.

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The A. O. Smith Corp., Milwaukee, Wis., has opened a new service branch of its product service division at Oakland, Calif.

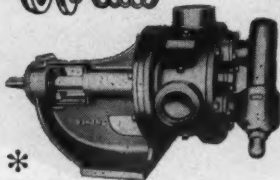
This branch is designed to provide a central West Coast location for efficient handling of replacement parts, service and repair and training operations.

A 12,000-sq. ft. building will serve users of such A. O. Smith products as electric motors, domestic Permaglas water heaters, commercial water heaters, domestic heating equipment,

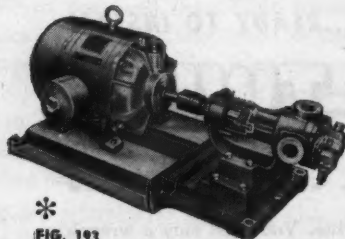
VIKING L-P GAS PUMPS

AVAILABLE WITH...

MECHANICAL SEAL



*
FIG. 190
LP-GAS PUMP WITH MECHANICAL SEAL—5-10-20-30-55 GPM SIZES



*
FIG. 193
SMALL DIRECT DRIVE UNITS
5 & 10 GPM SIZES



*
FIG. 192
V-BELT DRIVEN LP-GAS PUMP
5-10-20-30-55 GPM SIZES

*
FIGURE NUMBER INDICATES MECHANICAL SEAL EQUIPPED

In addition to an outstandingly dependable mechanical seal built especially for LP-gas service, the complete line of Viking power driven LP-gas pumps includes: 1. Internal non-lubricated bearing for dry liquids. 2. Treated head and bracket gaskets. 3. Revolvable casing for handy port location. 4. Integral thrust bearing for rugged dependable operation. 5. Bronze internal gears if desired. 6. Safety valve on pump head.

For fast filling of bottles, tractor tanks and other similar applications, the small direct connected Fig. 193 Viking units are the answer. They include all features listed above.

For the bulk plant, a complete line of power driven Viking LP-gas pumps are available. In addition to the V-belt drive unit shown are also, gear drive and direct drive units in the capacities listed.

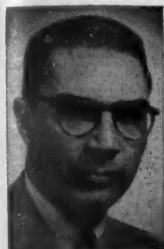
For complete information, send for free bulletin 2303B and supplement sheet SP-312B today.



VIKING PUMP CO. CEDAR FALLS IOWA

liquid petroleum gas systems and welding accessories.

Charles E. Smith, product service division manager, has named George A. Carlson as manager of the new Oakland branch. The division, with headquarters at Chicago, has other service plants at Union, N. J., and Dallas, Tex.



John "Jack" Glidden

Corken's, Inc., Oklahoma City, opened an eastern district office in Plainfield, New Jersey, with W. John "Jack" Glidden in charge.

Mr. Glidden has been trained for a year in manufacturing, field service, and plant erection, preparatory to assuming his new post.

He will handle sales and service on the Eastern Seaboard, from Maine through Maryland, inclusive.

His Plainfield headquarters will be located at 916 Putnam Avenue.



Robert M. Erskine

Cribben & Sexton Co. have appointed Robert M. Erskine, for six years Minneapolis district manager for the company's Universal gas range line, to the newly created post of special products manager.

According to Harold E. Jalass, vice president in charge of sales, Mr. Erskine will have charge of research and development of new products for addition to the present Universal range line, as well as sales training throughout the company's divisions in connection with the marketing of such "special products." At the moment, the sales training phase will concentrate on the new dishwasher-in-a-range combination.

Richard E. Anderson, who has replaced Mr. Erskine in Minneapolis, for the last four years handled the sales promotion of gas products in the dealer relations department of the Minneapolis Gas Co.

Richard L. Stone, formerly with the American Gas Association in Cleveland, has accepted a position as research engineer with the Wil-

liam Wallace Co., manufacturers of "Metalbestos" gas vent pipe.

Mr. Stone assumed his new position March 1 and will work from the company's head office in Belmont, Calif. He has been closely connected with research in such subjects as heat transfer in gas appliances, combustion and flow phenomena in flames and gases and the design and analysis of gas appliance venting systems. In addition, he is the author of a number of reports, bulletins and technical papers dealing with gas venting, appliance design and other phases of gas industry research.

Jack A. Scarlett has been appointed to the newly created position of manager of manufacturing engineering at *Servel, Inc.*, according to an announcement by Theodore L. Pantz, vice president in charge of manufacturing.

For the past five years Mr. Scarlett has been general superintendent in charge of tools, processing and layout at the Seeger Refrigerator Co. plant in Evansville. He will coordinate and supervise the activities of the maintenance division, tool division, process division, and methods and routing division.



DEPEND ON SUNRAY LP GASES When Your Needs are GREATEST...

When the bottom drops out of the thermometer and your customers are crying for more LP Gas, your worries are few if you are a customer of SUNRAY. SUNRAY customers know they can get the LP Gas they need from their usual dependable source. SUNRAY'S plant locations assure you of fast service no matter where you are.

WRITE, PHONE or WIRE . . .
Sales Department

SUNRAY OIL CORPORATION

General Office • First National Bldg.

5th & BOSTON

TULSA 3, OKLAHOMA

**GOOD APPLIANCES
STRONG PROMOTION
MORE SALES**



**For The
SALES PUNCH
You Want
You Need
The
ODIN
TEAM**



**Features that
sell and stay sold.**



**The world's
fastest drying action.**

Odin's promotion plan is engineered for more sales with better profits.

Like Odin appliances, Odin's sales plan is engineered especially for the LP Gas industry.

Builds sales from the ground up . . . begins with your salesmen. "Participate with pride. Sell with assurance."

ODIN
ESTABLISHED 1897

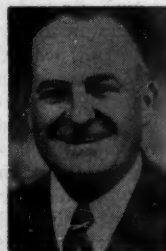
STOVE MFG. CO., ERIE, PA.
Beautyranges & Beautydryers



K. O. Dupree (left), manager of Magic Chef's Southeastern Sales Division, Atlanta, receives the President's Cup from Marc W. Pender, vice president in charge of sales. Looking on, and enjoying it, are Hermann Paris, Consolidated Gas Co., and D. A. Crawford, Atlanta Gas Light Co. The presentation ceremony took place in Atlanta.

After two years of service as district manager for the Weatherhead Co. in Memphis, James D. (Jimmy) Charton returned last month to the Arkansas Foundry, of Little Rock, in charge of the butane-propane division, according to an announcement made by Secretary Joe J. Schmelzer of the company.

"The foundry has plans for an expansion program and Mr. Charton will have complete charge of the butane-propane division," Mr. Schmelzer said. "This will include the sale of anhydrous ammonia tanks and fittings and also the carburetor conversion department."



L. A. Dixon



Gilbert T. Bowman

L. A. Dixon, Jr., vice president, Rockwell Manufacturing Co.'s meter and valve division, has announced the appointments of Paul C. Kreuch as assistant to vice president in charge of sales, and Courtney C. Shenkle as assistant to vice president in charge of manufacturing. The appointments are part of a reorganization program made necessary when Mr. Dixon assumed full responsibility for all sales and manufacturing departments of this division last January.

Other promotions announced were:

AUTOMATIC INCINOR
GAS-FIRED INCINERATOR

**A "MUST" in Homes with Automatic Heat
A FULL-PROFIT LINE • NO TRADE-INS**
INCINOR IS APPROVED BY A.G.A. LABORATORIES

ACT NOW FOR COMPLETE DETAILS
INCINERATION DIVISION, BOWSER, INC., CAIRO, ILL.

Gilbert T. Bowman, former manager of the Nordstrom Valve Division, elevated to sales manager of both the Nordstrom and gas products division; Carl C. Moore from district manager of Pittsburgh territory to central regional manager of sales; and W. S. Andrews, former district manager of the New York area, to district manager of the Pittsburgh territory.



R. H. Norris



C. N. Hinds

One of the nation's large manufacturers of gas area heaters, Dearborn Stove Co., of Dallas and Chicago, changed ownership recently when a group of Dallas investors, headed by D. O. Tomlin, C. A. Sammons and T. A. Rose, Jr., purchased the firm from the former owners, most of whom resided in the Chicago area.



D. O. Tomlin

The purchase involves manufacturing plants and other facilities in both Dallas and Chicago.

D. O. Tomlin resigned as treasurer of Briggs-Weaver Machinery Co., Dallas, to assume the presidency of Dearborn Stove Co. Feb. 1.

Charles E. Struwe, former controller, has been named secretary-treasurer of the company, and C. N. Hinds, former director of sales, has been elected vice president in charge of sales. Mr. Hinds was the first salesman hired by Dearborn when the company was organized in 1937. He was made general sales manager of the company in 1949, with offices in Dallas. In 1950 he was named director of sales.

Other Dearborn officers who will continue in their present positions are: R. H. Norris, executive vice president; C. D. Allison, vice president in charge of Dallas manufacturing; A. L. Van Brunt, vice president in charge of Chicago manufacturing. E. S. Kleinmann, formerly South-

ern division sales manager, has been named merchandise manager. C. K. Foslien, Dearborn advertising manager for the past four years, will continue in that job, assisted by Donald F. Lazuka. William J. Crum, director of market research, will be assisted by T. A. Mott. Joseph J. Peters is heading Dearborn's expanded water heater division.

A new office, showroom, and warehouse in Portland, Ore., has been opened by John Condon Co., Inc., gas heating appliance and equipment dis-

tributors who have been operating principally in Washington and British Columbia during the past few years.

Frank Peterson, of the Spokane office, has been transferred to Portland to become resident manager for Oregon, the lower part of Washington, and Idaho as far as Boise.

Added to the Seattle office staff is Ralph Willis, formerly connected with the Liquefied Gas Corp. and Home Gas Co., of Olympia, Wash., who will work principally with gas dealers in the western section.

Enterprise

Features that guarantee greater

SALES IMPACT

to bowl over competition!



MODEL 26384

- Two FULL SIZE ovens—Saves time—Bake pastry and roast or broil at same time.
- Four way selector for automatic time operation—Choice of either oven, left rear top unit or appliance plug.
- High wattage seven heat Monotube top units—Faster, better distributed heat—Easier to keep clean.
- Top unit pilot signal—A warning against unused unit being left burning—Fuel saver.
- Heavy steel chassis welded into one sturdy unit, including base—Finished in lifetime porcelain—Will not rust.



An Enterprise Range for every kitchen. Fourteen electric—thirty gas models to choose from. For catalogue and full details see your Phillips & Buttorff Distributor, or write:

Serving a value conscious America for nearly 100 years.

PHILLIPS & BUTTORFF MANUFACTURING COMPANY
NASHVILLE 3, TENNESSEE

First See
GRIFFITHS
for
**CONVERSION
 PARTS**

We can supply a wide assortment of spuds, orifices and other parts for converting domestic and commercial equipment to any type gas. Also, a complete line of repair parts for all types of gas meters.

Write for Catalog

**E. F. GRIFFITHS
 COMPANY**

350 EAST WALNUT LANE
 PHILADELPHIA 44, PA.

*Serving the Gas Industries
 For Over 40 Years.*



E. C. Hemes

formerly executive vice president and member of the Board of Directors of Vulcan Rubber Products, Inc. This new concern has been formed primarily to service and supply the gas utility industry with meter, regulator and other control diaphragms.

Associated with the new company as production manager of the diaphragm department is Hubert E. Francis, who has been credited with the development of the first moulded type meter diaphragm and who has made numerous subsequent contributions to the meter and regulator industry.

E. A. Norman, Jr., president of Norman Products Co., Columbus, Ohio, announces that his firm has purchased all production machinery

Duroflex, Inc., a new entry into the synthetic diaphragm and coated fabric field, has started production in its plant at Buena Vista, Virginia. Heading the new corporation is President Edward C. Hemes,

and tools of the Security Manufacturing Co., of Kansas City, Mo., and will merge them into present Ohio operations immediately.

The move, Mr. Norman said, is designed to round out Norman Products' existing production program for the manufacture of gas-fired heating units and air-conditioning equipment here.

The new facilities, Mr. Norman stated, will enable Norman Products to present a complete line of vertical, "hi-lo," counterflow and horizontal furnaces, unit heaters, and domestic, commercial and industrial conversion burners.

Norman Products also acquired the "Inn-A-Wal" trade name, owned by Security.

Directors of Harrisburg Steel Co., Harrisburg, Pa., have approved a merger of the concern with Heckett Engineering, Inc., Butler, Pa. The consolidation is subject to ratification by Harrisburg Steel stockholders.

Two new territory managers have been added to the sales organization of the Tappan Stove Co., A. B. Ritzenthaler, vice president in charge of sales, has announced.

Taking over as manager of the



PROPANE TRUCK TANKS
FOR ALL DELIVERY NEEDS

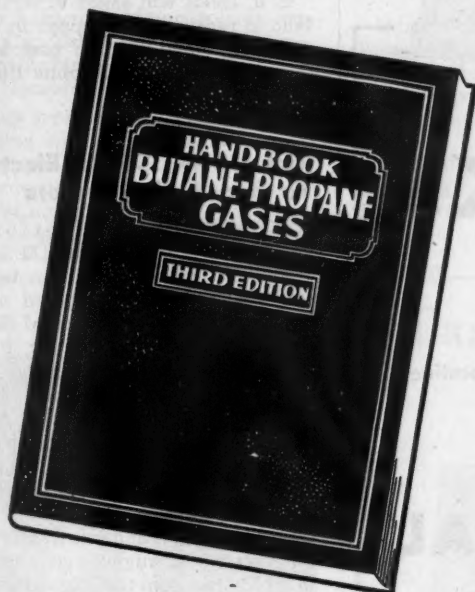
In streamline (illustrated) and walkway types, 1,181 gal. to 1,700 gal. water capacities. Constructed in accordance with A.S.M.E. Code, par. U-69, 200# w.p., or A.S.M.E. Code, 1950 edition, 250# w.p. Mounted on your chassis complete with valves, fittings, pump, hoses. Unit ready for immediate use when picked up. Write for details.

Also 500 gal. and 1,000
 gal. Domestic Tanks
 (Salem System)
 Storage Tanks
 Up to 8,000 gals.



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 SALEM 5, ILLINOIS

**The Only Complete Reference Book
on Liquefied Gas Engineering,
Installation and Operation**



**352 PAGES of Technical
Facts, Charts, Diagrams,
Photographs, including Latest Processes and Materials**

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Properties of Hydrocarbons in L. P. Gas
Properties of Butane-Propane Mixtures
Volume Correction Factors
Analytical Determination and Testing
Natural Gasoline Plants, Recycling Plants, Oil Refineries
Delivery by Truck, Rail, Water, Pipe Lines
Storage Tank and Pressure Vessel Design
Liquid Metering and Pumping Systems
Installing and Servicing L. P. Gas Systems
Semi-Bulk Systems
Bottled Gas Systems
Gas Utility Service from Central Plants
Multiple Utility Service from a Central Plant
Comparative Performance with Other Fuels
Appliance Installation and Testing
Domestic Applications
Commercial Applications
Industrial Applications
Enrichment, Peak Load and Standby Uses
Fuel for Internal Combustion Engines
N.B.F.U. Pamphlet No. 58 (1947)
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Bibliography
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We pay postage on orders accompanied by check or money order. In California add 23¢ for sales tax.

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BUTANE-PROPANE News
198 SOUTH ALVARADO STREET
LOS ANGELES 4, CALIFORNIA

This
STAINLESS CLAD TOWER



diameter 7'—length 75'
weight approximately 34 tons
stainless clad 20%—type 316

TYPICAL EXAMPLE OF SKILLED PLATE FABRICATION



... yes, DOWNINGTOWN's experience and research in the fabrication of various grades of Carbon Steel, Stainless Steels, Nickel-Clad, Stainless-Clad, Monel-Clad, Cupro-Nickel, Aluminum, etc., may be of help to you. We are equipped with the most modern facilities to handle complete jobs, within our limitations, in the correct alloys and methods of fabrication required to assure maximum operating efficiency.

DOWNINGTOWN also maintains a Heat Transfer Division under the direction and supervision of men thoroughly trained and experienced in this field. Our Engineering Consultation is at your service to aid you in preparation of plans and specifications for definite jobs.

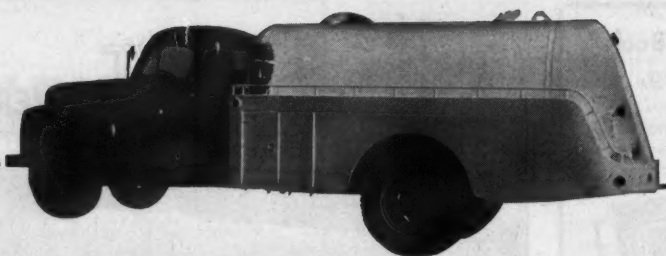
Useful literature sent upon request on your business letterhead. Remember: "Your Needs are Our Specialty!"



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DIVISION OF
PRESSED STEEL
TANK COMPANY

PIPE AND ALLOY PLATE FABRICATION AND TEST EXAMINATIONS



TRUCK TANKS

- Twin or single barrel
- Light weight
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ASME U69

Built to Your Specifications and Size

Write For Further Information and Prices

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Keep Up

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Developments

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B-P News brings you Facts, New Ideas, New Methods, News and Reports. You'll want to read every chapter in the Management Series. Don't miss an issue!

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STATE _____

My connection with the LP-Gas Industry is _____

state of Colorado is Jim Culbertson. Mr. Culbertson formerly was associated with Savage and Son distributors in Denver before joining Tappan.

E. J. Heidt will assist V. O. Donatello in representing Tappan in Florida. Mr. Heidt for the past seven years was with the Carolina Butane Gas Co.

Richard M. Scaife Elected To Board of Directors



Richard M. Scaife

Election of Richard M. Scaife as a member of the board of directors of Scaife Company, Pittsburgh, Pa., was announced recently by A. V. Murray, president of the firm.

Mr. Scaife's election continues the father-and-son tradition of the company through six generations, in direct line from the original founder, Jeffery Scaife. The new director is the son of Alan M. Scaife, board chairman. He is a member of the research staff of Multiple Fellowship sustained by the Scaife Company at Mellon Institute.

The oldest U. S. manufacturing firm west of the Allegheny Mountains, Scaife Company last year celebrated its 150th anniversary. At its Oakmont plant, the company currently is manufacturing pressure vessels for air, gases and liquids, and defense products for the Ordnance Corps, Air Force and Navy.

Anco Holds Annual Sales Meeting

Representatives of ten manufacturing companies whose equipment is among that stocked and distributed by Anco Manufacturing & Supply Co. addressed the two-day 1953 annual meeting of Anco held February 27 and 28 at company headquarters in Tulsa, Oklahoma.

Subjects and speakers on the program were as follows: Pumps and Compressors—Charles Corken, Corken's, Inc., Oklahoma City; Anhydrous Ammonia Fittings—Charles H. Boylan, Weatherhead Co., Cleveland; LPG & Anhydrous Ammonia Hose—Vic Emery, Aeroquip Corp., Dallas; Tank Fabrication—Jack Fogarty, Graver Tank Mfg. Co., Sand Springs, Okla.; L. P. Gas Regulators—R. C. Lisk, Fisher Governor Co., Marshall-

town, Iowa; LPG Fittings—Ralph Meeder, Selwyn-Landers Co., Los Angeles; Electric Motors—John Elder, Leland Electric Co., Tulsa; Truck Pumps—Glen Ward, Viking Pump Co., Cedar Falls, Iowa; Controls—Russ Karpenko, Minneapolis-Honeywell Co., Tulsa; Ball Type Valves—Larry Anning, Rockwood Sprinkler Co., Houston.

Anco representatives attending the meeting were from Omaha, Minneapolis, and East St. Louis, Ill., where the company maintains branch warehouses, and from Tulsa headquarters. The meeting was presided over by Max Wattman, vice president of Anco.



R. J. Swallen



Jack Bland

Jack Bland and R. J. Swallen Win Tappan Sales Contest

While completing his first full year as a Tappan Stove Co. sales representative in 1952, Jack Bland, of San Antonio, Texas, made the highest percentage of quota in the four-year history of the company's annual sales contest, it was announced by A. B. Ritzenthaler, vice president in charge of sales. Mr. Bland was sent to San Antonio shortly after joining the company in August, 1951.

The other four men in the group headed by district manager R. J. Swallen, of Houston, Texas, all ended among the first seven salesmen, thus winning Mr. Swallen the trophy and cash award as top district manager. Before his promotion to district manager, Mr. Swallen was runner-up in the sales contest in 1949 and 1950.

Second place among district managers went to O. J. Haagen, of Columbus, Ohio, and third place to G. K. Kunkle, of Charlotte, N. C.

The runner-up in the sales representatives' contest was S. A. Hanner, of northern Louisiana and Texas, who was followed in order by R. O. Donatello, of southern Louisiana, J. E. Schettler, of Virginia, C. A. Rogers, of Arkansas, G. W. Cassel, of Dallas, Texas, G. R. Corson, of Houston, Texas, R. C. Smith, of Mississippi and

Alabama, D. L. Shelley, of North Carolina, and L. A. Carducci, of northern New Jersey.

Nor-Tex Increases Line

North Texas Tank Co., of Denton, Texas, pioneer "Custom-Bilt" LPG tractor and motor fuel tank fabricators, have announced the addition of several new Nor-Tex tanks to the large line now in production. New units available are the Farmall M Crossmount 37 WG; Farmall M Underhood 25.9 WG; Farmall H Under-

hood 22 WG; SC Case; John Deere MTI 13.1 WG; New Type John Deere A & G; New Type Ford & Ferguson; Farmall C 20.4 WG; Massey Harris 22, 30 and 55; and a revolutionary new type step-tank for International and White truck tractors, with running board a part of the tank and offering capacities from 100 WG up.

Another new product being offered to the expanding anhydrous ammonia field is the Nor-Tex Ranger, a 3000-lb., 4-wheel unit with 1000 WG anhydrous tank permanently mounted with hose reel, fittings, tires, etc.

Carries your shop to the job...



the NEW Service-Master

BOTTLED GAS SERVICE BODY

Service-Master is designed to speed up your work — styled to reflect the ability of your firm. Its six weathertight compartments include shelves and bins for the tools and parts you'll need on the job.

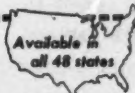
Whether your chassis is old or new — you'll find it economical to choose *Service-Master* for your next service body.



1. Weatherlight, double-panel doors.
2. 48 1/2" wide loading area, with one-piece ribbed steel floor.



3. Fully enclosed wheelhousings.
4. Parts bin with hinged cover and removable dividers.



Available in all 48 states

McCABE-POWERS AUTO BODY CO.
5900 NORTH BROADWAY • ST. LOUIS 15, MISSOURI

Please send me literature and complete information on *Service-Master*:

Name

Company

Address

City Zone State

XD

It's easy to spot the dealer who carries
the complete *Martin* line...



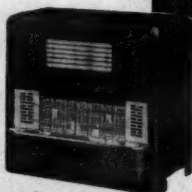
He sells more GAS HEATERS!

A correct style and size for every need

- 8 FULLY VENTED HEATERS
15,000 BTU to 85,000 BTU
- 22 UNVENTED HEATERS
10,000 BTU to 50,000 BTU

All AGA approved for natural, liquified and manufactured gases. All equipped with automatic safety pilot.

Write your jobber or direct for complete catalog



Over
45 Years Stove
Experience



MARTIN STAMPING & STOVE CO., Huntsville, Ala.

"TANKS for Your Business"

DIXIE LPG TANKS

A.S.M.E. Code Construction

**You Can't Sell a Better Tank Than DIXIE
Priced Right—More for the Money**

Compare Quality and Price

**120-1000 Gals.—Hemespherical or
High Crown Heads**

FLINT STEEL CORPORATION

MEMPHIS, TENN. • TULSA, OKLA.



Metal cutting with propane by
Delaware firm.

Propane Eclipses Acetylene For Metal Cutting

The Budd Metal Co., Wilmington, Del., is daily proving the economy of L. P. gas for metal cutting work, according to Milton Levinson, manager of Schagringas Co., Middletown, Del.

As shown in the picture, a bank of oxygen cylinders is tied in with the propane through hoses and the mixture is then fed to the cutting torch.

A cost comparison of acetylene versus propane which was made by The Budd Metal Co. reveals a substantial saving as follows:

5 tanks of oxygen.....	\$16.25
1 tank of acetylene.....	10.50
Total cost—3 days burning.....	\$26.75
Cost per day.....	8.92
10 tanks of oxygen.....	\$32.70
1 tank of propane.....	7.00
Total cost—6 days burning.....	\$39.70
Cost per day.....	6.58

As may be seen from the above figures, one tank of propane provided six days of burning and resulted in a saving of \$2.34 per day.

Lou Davis Spreads LPG Gospel to Service Clubs

A factual and interesting talk on the L. P. gas industry was recently presented to the Kiwanis Club, Middleboro, Mass., and the Rotary Club, Hyannis, Mass., by Lou Davis, district secretary of the LPGA office in Boston.

Highlights of Mr. Davis' talk covered the growth of L. P. gas production from 465,000 gallons in 1926 to the approximate 4,100,000,000-gallon

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volume of 1951. Calling it "truly one of America's fastest growing industries." Mr. Davis pointed out that the 1951 L. P. gas volume accounted in dollars for approximately 4% of the petroleum industry volume at retail, and stated that over 8 million families in the U. S. are regular users.

After a review of the many consumer and industrial uses for L. P. gas and a comparison of costs and benefits with other sources of heat and power, Mr. Davis concluded with some salient remarks concerning the rosy future of the industry.

"The industry will continue to grow," he said, "through attracting more new users to L. P. gas. New appliances using it will be brought on the market, as well as greater improvements of existing appliances. Probably the greatest increase in the future will be its use as a motor fuel."

Nation-Wide Promotion Will Aid LPG Dealers

April marks the kick-off for "Operation Sales," the first industry-wide sales program embracing the entire membership of the domestic gas range division of the Gas Appliance Manufacturers Association. Two-color ads in trade magazines and a complete packaged promotion of practical point-of-sale aids highlight the program which is designed to help dealers sell more automatic gas ranges.

According to W. T. Trueblood, chairman of the special "Operation Sales" committee, the new dealer aid campaign is part of an industry-wide drive to coordinate gas promotion by closer tie-ins with dealers, manufacturers, utilities, GAMA and the American Gas Association.

short cuts.

"With these ads," said Mr. Trueblood, "we intend to bring sales training right into the dealer's store with a series of short, snappy demonstrations that can be learned by salesmen in a matter of minutes."

In addition to trade paper advertisements containing "quickie demos," special demonstration books will be offered to dealers through GAMA, distributors, manufacturers and companies. The booklet contains many demonstration tips and selling short-cuts.

"The whole idea of this 'selling by doing' campaign," said Mr. Trueblood, "is to bridge the most important gap in sales—the distance between the customers and the dealer—since surveys show that only 53% of the sales-making and sales-closing

An A. G. A. Approved Stove for every purpose



Vented and Unvented

America's Most Complete Line of Gas Heaters. Distinctive Designs. Perfect Performance.

Write for Catalog



UNITED STATES STOVE COMPANY
South Pittsburg, Tenn.

NEW one-man CYLINDER TRUCK

To carry Butane, Propane cylinders. Wheel guards and strap holders permit handling of stoves, appliances, water heaters, crates, etc. 10x2.75 semi-pneumatic tires, Hyatt bearings. Many thousands in use. Order on "return if not pleased" basis.

\$18⁹⁵

No. 77 Cylinder and Appliance Truck

THOMAS TRUCK & CASTER COMPANY
275 MISSISSIPPI RIVER • KEOKUK, IOWA

ARMSTRONG CERAMIC GAS LOGS



Designed to resemble rough oak—solidly made to stand any heat. AGA approved for any gas. Bar steel base, black finish. Cast iron burner, solid brass valve, 17" high, 11" deep.

L-20—21" wide, 20,000 B.T.U.
L-24—24" wide, 24,000 B.T.U.
L-30—27" wide, 30,000 B.T.U.

Order from your jobber or write for literature on complete heater line.

ARMSTRONG PRODUCTS CORP.
Quality Since 1899
Dept. BP



Huntington 12, W. Va.

DISTRIBUTOR DEALERS

IF YOU OPERATE IN A "HARD WATER" AREA YOU CAN DOUBLE YOUR BUSINESS BY ADDING FILTER-SOFT—A NEW METHOD OF CONVERTING HARD WATER INTO SOFT. SERVICING FILTER-SOFT, ALONG WITH BOTTLED GAS IS A NATURAL.

Get a

Filter-Soft WATER

Franchise



You have the set-up and dealers—all you need are softeners and inexpensive regenerating equipment. We furnish everything—simple installing instructions and a selling program to give your dealers.

Territory being allotted daily.
Write now for interesting details.

FILTER-SOFT Corporation

Dept. BPN
12911 ARTESIAN AVE., DETROIT 23, MICH.

Handy Bender says



"Save money by
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material turned out by manufacturers is used by the dealers."

The American Gas Association will launch a "Carnival of Gas Cooking" during April which will feature such themes as "Only Gas Gives You Smokeless Broiling", "Fresh Air Ovens", "Wide Variety of Top Burners", "So Much for So Little", etc.

The committee which fathered "Operation Sales" is headed by Mr. Trueblood, manager of advertising, Magic Chef, Inc., and includes the following members: H. E. Jalass, Cribben & Sexton Co.; R. G. Johnson, Florence Stove Co.; S. B. Rymer, Jr., Dixie Foundry, Inc.; E. Carl Sorby, Geo. D. Roper Corp.; George M. Wolfe, Sun Ray Stove Co.; and O. E. Loberg, Gurney Foundry Co., Ltd.

How To Speed Up Transfer Of LPG Told In Booklet

"Arranging the Pump Discharge Line for Fastest Delivery" is the name of a valuable booklet just released by Smith Precision Products Co., manufacturers of transfer pumps used in the LPG industry.

The material in the booklet first appeared in an article in the January issue of *Butane-Propane News* and was written by Lawrence W. Smith, manager of the above company.

Free copies of the booklet may be obtained by a request on your company letterhead to Smith Precision Products Co., 1135 Mission St., South Pasadena, Calif.

Propane Powers Generator For Oregon Snow-Making

Seeding clouds to increase rainfall is almost commonplace by now. Less usual is the California-Oregon Power Co.'s program of seeding to increase snowfall. Snow-making began this winter on Nov. 29th. Last winter's program, the first time it was tried by the power company, ran a total of 1691 generator hours from November through April, and covered a 1200-square-mile area of the Cascade mountains watershed. Each 50 hours of generator operation uses up a 24-gallon cylinder of propane.

The method used to hurl the silver iodide "seeds" skyward toward promising clouds is essentially the same as that described for increasing rain (see September, 1951, BPN). The contractors, North American Weather Consultants, of Pasadena, Calif., use their own design modification of the ground generator originally developed by General Electric research



PRICES SHOWN BELOW INCLUDE TRUCK AND TANK PIPED COMPLETE

Specifications: New 1953, H.D. 2 ton Chev., 2 speed axle, 825, 10 ply rear, 750 front tires; Nor-Tex Propane tank as pictured above; pump, piped complete 2" with strainer; 50 ft. filler hose; white enamel and clearance lights.

(All sizes tanks from 600 to 2,000 gal. available)

Price of truck and tank complete	1320	1400	1600
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twin			

Pittsburgh and Neptune meters; propane carburetion also available. Any make or model truck available at 20% discount from list price.

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Preston W. Grace

WHITE RIVER
DISTRIBUTORS, INC.
Batesville, Arkansas

scientists Vincent Schaefer, Dr. Irving Langmuir, and Dr. Bernard Vonnegut.

Gas from the propane cylinder is passed through the tank in which the silver iodide is kept in an acetone solution, and this pressure forces a fine spray of the silver iodide into a propane burner, where it is vaporized. The vapor is then released at the rate of 1 trillion crystals per second into upward air currents, which always exist when a storm is brewing. This is done 10 to 20 miles upwind of the target area.

Only three or four generators are used at a time, and only when weather conditions are exactly right. Seven ground generators are in the hands of local operators, who turn them on when notified by company field meteorologist Robert F. Strickler; another is mounted on a pickup truck and is run by Mr. Strickler personally. All the generators are maintained and supplied with cylinders of propane and tanks of silver iodide solution by Mr. Strickler.

The company's report on last year's operations claims that "cloud seeding increased the snow pack in the target area by 33% above what could have been expected on the basis of comparison with a historically related area to the north. Run-off appears to have been raised by about 25%."

Although the California-Oregon Power Co.'s interest in snowfall is as an indirect source of electric power, Scientist Schaefer's own interest in improving skiing conditions suggests another use for the cloud seeding operation—and another market for propane—in winter resorts and sports areas.

Alberta Absorption Plant Will Make Butane, Propane

Forty-five million gallons a year of propane and butane, as well as 15,000,000 gallons of natural gasoline and other liquid products, are expected from a proposed Barcam, Ltd., gas absorption plant to be built near Edmonton, Alberta, Canada. The company proposes to process 35,000,000 cubic feet a day of flare gas obtained from 11 nearby gas fields.

Plans for construction of the \$10,000,000 plant were announced by Robert Campbell of Vancouver, president of Barcam. Financing and engineering are both in U. S. hands, the latter being done jointly by Hudson Engineering Co., of Houston, Texas, and Ebasco Services of New York.

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AIR MIXTURES



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HELP WANTED

SALESMEN NOW CONTACTING L.P. gas distributors, cylinder and tank manufacturers to handle major line of equipment by a leading manufacturer. A number of good territories are still open. Write Box 900, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, Calif.

WANTED—EXPERIENCED SALES REPRESENTATIVES. We have openings for aggressive sales representatives with experience in sale of L.P. gas and anhydrous ammonia systems. Openings in Middle West or Middle Southeast. State experience and full information in application to: General Manager of Sales, The J. B. Beard Company, Inc., P. O. Box 1115, Shreveport, Louisiana.

OPENING FOR WORKING MANAGER in expanding area near New York. Equipped showroom. Living quarters available nearby. Percentage arrangement considered with responsible party. Box 165, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, Calif.

MANAGER WANTED! WE NEED A MAN who has experience in the L. P. (Bottled Gas) Business, to manage a branch office and sales department in Central Pennsylvania. Must be sales minded and have the know-how of service and installation of L. P. Gas Systems and appliances. This is a real opportunity for an aggressive L. P. gas man who wishes to be practically in business for himself. Salary and percentage of profits. In your first letter give us a detailed account of your experience and references. Write Box 220, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles 4, California.

SITUATIONS WANTED

CAPABLE, EXPERIENCED L. P. GAS man desires responsible position as manager. Age 36, married, family, college graduate, accounting major. Thoroughly familiar with all phases of L. P. gas plant operations, distribution, office, service, personnel supervision and sales. Best of references. Desire Midwest location. Write Box 170, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

EXPERIENCED LPG MAN TO MANAGE your plant on a salary-profit sharing plan, part of which to be invested into business. Know carburetion, licensed installer. Two yr. college plus one year business college. Now employed as book-keeper-assistant manager. Write Box 175, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

WANTED: POSITION IN THE WEST by well experienced L. P. and natural gas service man. References. Harold Senner, Hoyt, Kansas.

BUSINESS OPPORTUNITIES OFFERED

LPG BUSINESS IN SACRAMENTO AREA. Established 7 years. Office and showroom. 1300 gallon delivery truck and 12,000 gallon storage tank. Bulk business averaging 300,000 gallons annually. Contact W. C. Elliott, P.O. Box 459, Fair Oaks, California.

BUSINESS OPPOR. OFFERED - Cont.

FOR SALE: LPG BUSINESS COMPLETE, located in California. Three delivery trucks, over 30,000 gallon storage, equipment all in good shape. Gross profit over \$70,000.00 in 1952. Gross sales 1952 well over \$150,000.00. Business has more than doubled itself each year for past 3 years. \$50,000.00 cash will handle. Inquiries must give evidence of financial responsibility which will be verified before interview. Apply Box 195, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

FOR SALE: ONE OF THE BEST BUTANE and propane businesses in Mississippi. Large storage with bottle, tractor and domestic business. Equipment in A-1 condition. Can be bought with or without top line of appliances. Can be handled on terms, as it is definitely a paying business. Reason for selling? Want to retire from business. Write H. J. Sylvester, Route 1, Box 741, Memphis, Tennessee.

MANUFACTURER'S REPRESENTATIVE. Do you need a good sales organization? Ready-made young, aggressive sales organization with successful background in L.P. field want L.P. lines on an exclusive basis in Minnesota, Wisconsin, North and South Dakota, Nebraska, and Iowa. In return you get close coverage and profitable sales results. Write Box 185, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

FOR SALE IN KANSAS: TWO PROPANE trucks, 4 delivery trucks, 10,000 storage, 200 cylinders. Warehouse and office. Business showed good profit 1952. Some terms to right party but must have substantial down payment. Priced with or without inventory. Write for detailed price. Box 215, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles 4, California.

INVENTORS—NEW ITEMS WANTED. Young, aggressive organization of manufacturer's representatives want new L.P. items to promote. Have successfully placed three on national market in U. S. and Canada. Will handle and promote nationally on exclusive basis. Write Box 180, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

APPLIANCE SALESMEN CAN SELL commercial ranges, griddles, to bottled gas distributors. No conflict with regular lines. One of country's oldest manufacturers. Liberal commissions. Give full details in your letter. Address Box 190, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

BUSINESS OPPORTUNITIES WANTED

WANTED TO BUY: L. P. GAS BUSINESS in Florida or Virginia. 200 to 2000 customers. Write full particulars to Box 210, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles 4, California.

WANTED TO BUY: BOTTLED GAS OR bulk gas business. Prefer combination of both. Advise number of customers, gallonage, equipment, trucks, etc. Write Box 205, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

Display-classified advertising rates can be secured by writing publisher. For regular classified advertising, set in 7 point type without border or display, the rate is \$1.00 per line per insertion. Count each letter and space between words and allow 46 letters and spaces per line. Minimum charge is \$3.00 per insertion. Classified advertising payable in advance. Copy and payment must reach publisher's office prior to first of month preceding date of publication.

BUSINESS OPPOR. WANTED - Cont.

WANTED TO BUY

Privately owned L.P. Gas business. 500 to 2,000 customers in Ohio, Pennsylvania, Indiana or Kentucky. Wholesale business preferred. Write Box 333, Barnesville, Ohio.

BUSINESS CONNECTION WANTED. L.P. gas sales engineer. Well diversified experience. Will represent equipment manufacturers and producers desiring sales outlet in Middle Atlantic and New England States. Write Box 200, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

FOR SALE—TRUCKS AND TRAILERS

NEED A WORKHORSE? WE HAVE NEW 353 GMCs 2 ton 2 speed w/8:25 tires complete with 1500 WG twin Nor-Tex Unit consisting of the new 55 GPM Peerless Pump w/mechanical seal and O rings. Neptune Print-O-Meter enclosed in meter box, fuel tank, plumbed, skirted, tax paid, filler hose, white enamel and lettered. \$4684.50 F.O.B. North Texas Tank Co., Phone Central 4516, Denton, Texas.

FOR SALE: SET OF DOUBLES PROPANE semi and full trailer. Lightweight tanks. 7700 gallons. Fortier Transportation Company, P.O. Box 431, Fresno, California.

PROPANE DELIVERY TRUCK FOR sale. 1952 Int. L-162, 2 ton, 2 speed axle, heater, with 1500 W.G. twin Nortex propane tank, pump, Ensign propane carburetion, Pittsburgh non printer meter, 50 ft. 3/4" hose, piped heavy duty complete. This truck, tank, etc., is only 4 months old with 9,000 miles. Perfect condition. new cost: \$4,875.00. Our price: \$3,895.00. It won't last long. Call Preston Grace, Phone 570, Batesville, Ark.

1951 INT. L-150, 1 1/2 TON, 23,000 MILES with NEW 1250 gal. single Nortex propane tank, both for \$2,100.00. Can install pump, hose, carburetion, and pipe complete for additional \$525.00. White River Distributors, Inc., Batesville, Arkansas.

NEW PROPANE DELIVERY TRUCKS, twin or single barrel, mounted on new Chev., Ford, G.M.C., International or Dodge, any size from 600 to 2,000 gal. Your choice of pumps, meters, and carburetion, piped complete ready to deliver gas. We guarantee to save you from \$100.00 to \$600.00. Call us collect before you buy. White River Distributors, Inc., Batesville, Arkansas.

BUTLER 3650 TWIN PROPANE SEMI- trailer with 1946 Int. tractor, 1952 motor, Smith pump. \$5000.00. Purair Corp., 714 Wabash, Terre Haute, Indiana.

FOR SALE—TANKS AND CYLINDERS

AT DEPRECIATED PRICE, 1400—6#— 4#240 Pressed Steel Tank Company cylinders. City Gas Service, Inc., Wisconsin Rapids, Wisconsin.

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FOR SALE - TANKS, CYLINDERS - Cont.

FOR SALE—NEW 18,000 W.G. PROPANE Tanks, New 30,000 W.G. Propane Tanks. Shipped from Nebraska. March delivery. All tanks 200# W.P. U-69 with or without fittings, ladder, platform, visual or rotary gauge. Write or wire Keith Kugler, Manufacturer, Culbertson, Nebraska.

CYLINDERS ICC, 4B240. BRAND NEW. 100 lbs. capacity, TW 70 lbs. \$13.95, valve extra. Also 20 lb. capacity with Rego valve complete, \$9.45. Lower prices for large quantity orders. A complete stock of regulators and fittings for immediate shipment. F. O. B. Cleveland, Ohio. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland 15, Ohio.

THIS IS THE "CONVENTION SPECIAL"
—New 1953 Reo F-20B Reo Gold Comet Chassis, 8:25 rear, 7:50 front, completely equipped with 1250 WG Nor-Tex Twin Tanks, skirted, plumbed, fuel tank, KK190 Viking Pump (with mechanical seal), 50' filler hose, excise tax paid, ICC lights, power take-off w/spline jack shaft, aluminum paint over red oxide. Ready to go at \$3950.00 F.O.B. Denton. Meter, LPG carburetion, meter box, etc., extra at reasonable prices. Why don't you write, wire or phone, Nor-Tex Products Co., Box 775, Phone Central 5416, Denton, Texas.

IMMEDIATE DELIVERY. NEW 1953 2 ton 2 speed Chevrolet or F6 Ford with 1400 WG twin Nor-Tex tanks equipped with 50 GPM mechanical seal Corken pump, fuel tank, filler hose, Pittsburgh reset meter, Hannay hose reel, 20# extinguisher, white enamel, Ensign LPG carburetion and enough propane to get home. F.O.B. North Texas Tank Company, Box 519, Phone Central 5416, Denton, Texas. \$4500.00.

FOR SALE—MISCELLANEOUS

DON'T BE OLD FASHIONED! GET A Nor-Tex "Pony" LPG Bottle Station, 890 WG complete on heavy skids, double locking cabinet, Corken No. 10 pump, 25' hose coupled and valued; Pittsburgh Reset Meter installed complete: \$914.45, F.O.B. Nor-Tex Products Company, Box 775, Denton, Texas.

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"STOP THAT LEAK". ITS EASY TO FIND with Leak Detecto Brush. \$3.75 ea. Quantity discounts. Solution, 5-gal. \$7.50. 1-gal. \$1.75. Gas Appliance Stores, Inc. Box 5057, Columbia, S. C.

GALVANIZED HOOD, STAND, AND BASE to protect your two cylinder installation; \$5.45 each. Packed 10 to a carton. Also Rego or Fisher 2-cylinder regulator, T Block, and 2 pigtailed at \$4.65 each. Sold on satisfaction or money refunded. Home Gas Equipment Co., 1301 Carnegie Avenue, Cleveland, Ohio.

COPPER TUBING—3/4" OD X .032 WALL —50 ft. coils, lots of 10 or more \$4.95 per coil. Less than 10 at 50¢ per coil. Freight prepaid on 20 or more coils. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland, Ohio.

ALUMINUM CYLINDER PAINT. EXTRA heavy body, long lasting, 10 minute drying, for spray or brushing. List price \$4.30 per gallon. Your Cost \$2.85 per gallon. Freight prepaid in lots of 20 gallons or more. Finest quality paint you can buy for bulk tanks or cylinders. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland 15, Ohio.

FOR SALE—MISC. - Cont.

240 SERVEL GAS REFRIGERATORS, Model R400A (1946 - 4 cu. ft.) at \$25. Also 185 Servels, Model N510A (1942 - 5 cu. ft.) at \$25. Used, guaranteed perfect operating condition—direct from apartments. Modern, attractive, complete. Just in time for your spring season. Quantities only. Low delivery cost anywhere. We ship by trailer, each refrigerator carefully wrapped and padded. Call us collect for full information. Beach Refrigerator Co., 196-11 Northern Blvd., Flushing 58, New York City. Phone Flushing 7-6161.

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FOR SALE OR TRADE: 1700 GALLON portable bottling plant. Manufactured by McNamar & Crowley. Downen Furniture Store, West Frankfort, Ill.

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USED FISHER REGULATORS, 40 NO. 940 and 15 NO. 721; five Crane steel 600 lb. valves, 2 inch. Leidy's O'Neill, Nebraska.

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INDIVIDUALLY DESIGNED BULK PLANTS

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Signal and Amerada Plan \$15,000,000 Plant In N. D.

A \$15,000,000 natural gasoline plant in North Dakota is to be constructed under a contract recently signed by the Amerada Petroleum Corp. with the Signal Oil and Gas Co. The plant, to be built in the vicinity of the Beaver Lodge and Tioga oil fields in the Williston basin, will process the gas produced with the oil and will extract natural gasoline, LPG, and some sulphur, leaving a residual dry gas that will be sold for domestic and industrial uses.

About \$10,000,000 of the total is expected to be spent by Signal in the next two years. Under the contract,

the plant will be constructed and operated and the products marketed by Signal, and the proceeds from its operation will be shared by the two companies. The agreement calls for a facility with a processing capacity of 40,000,000 cubic feet of gas per day, which, according to estimates, will yield approximately 150,000 gallons a day of natural gasoline and LPG, as well as some 40 tons of sulphur.

The plant is expected to process gas from other producers in the area, as well as that produced by Amerada. It is to be designed to allow for expansion if needed; according to Signal President Samuel B. Mosher, production could be doubled if the field "develops as indicated."

Construction is scheduled to start shortly. It is expected that a pipe line outlet for the oil from the Beaver Lodge-Tioga field will be available when the plant goes into operation during or before the autumn of 1954.

Shell Chemical Builds \$15 Million Ammonia Plant

The Shell Chemical Corp. is now building a plant to make anhydrous ammonia from the natural gas produced at the nearby Shell oilfield in Ventura county in California. The ammonia plant, which may cost up to \$15,000,000 by the time it reaches completion, is certain to be the largest industrial installation in the area.

Two steel storage spheres, now under construction, are 65 feet in diameter and each has a capacity equal to that of 110 railway tank cars, according to plant manager Frank Kuenzly, Jr. Local residents have been much impressed by the size of the components—the compressor that weighs more than 110 tons, the 70-foot, 90-ton steel beams, and the steam boiler, which stands almost 25 feet high. Equipment was designed by M. W. Kellogg Co.

W. C. Mickle Becomes Vancouver Company Head

The directors of Bottled Gas, Ltd., Vancouver, B. C., Canada, have announced the appointment of William C. Mickle as company manager. He was formerly manager of Imperial Oil Co., Ltd.'s Western special products division at Nisku, Alberta. Norman Brown, under whose management Bottled Gas, Ltd., experienced a marked expansion in recent years, remains as management consultant.

Mr. Mickle's experience in the retail distribution of propane goes back to 1947, when Imperial Oil developed its Ontario market for that gas.



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Climax vaporizers fit any vapor system	6.25
Woods brooders, 500 chick	39.50
John Deere cold manifold	17.00 up
Pittsburgh meter small computer	77.50
Differential valve for Pittsburgh meters	39.50
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Liberal, Kansas

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* Kerotest Manufacturing Co.	39	* Linde Air Products Co. Unit	35
* Linde Air Products Co., The Unit of	48	* United Petroleum Gas Co.	—
Union Carbide & Carbon Corp.	98	* United States Rubber Co.	139
Liquefied Petroleum Gas Assn., Inc.	91	* United States Stove Co.	114
* LPG Credit Corp.	38	* Universal Products, Inc.	141
Lubbock Machine & Supply Co.	—	* U. S. Air Conditioning Corp.	—
Madden Brass Products Co.	27, 85	* Viking Pump Co.	130
* Magic Chef, Inc.	141	* Warren Petroleum Corp.	3
* Mallinckrodt Chemical Works	—	* Weatherhead Co., The	25
Manchester Welding & Fabricating Co.	—	* White River Distributors, Inc.	140
		* William Wallace Co.	121